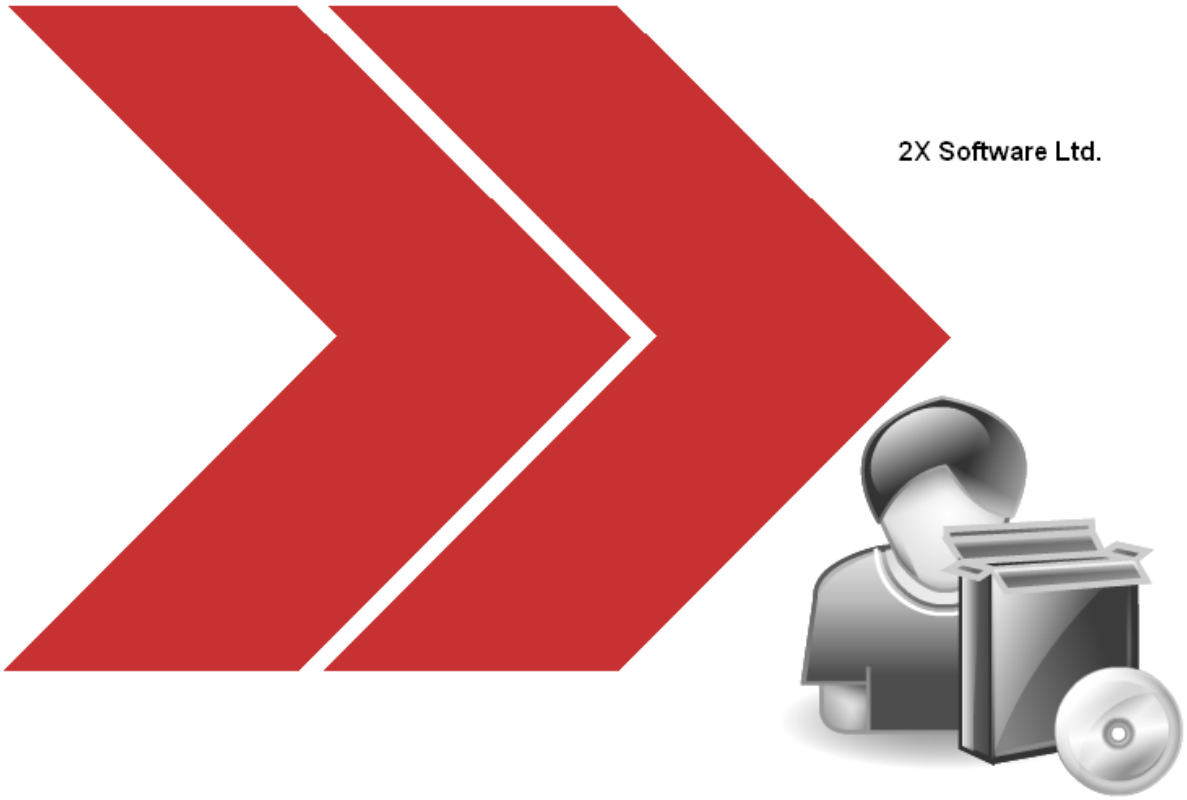
2X ApplicationServer & LoadBalancer

Manual



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INTRODUCTION

What is 2X ApplicationServer & LoadBalancer Console?

2X ApplicationServer & LoadBalancer Console is an easy-to-use centralized GUI Application that allows configuration of 2X ApplicationServer and 2X LoadBalancer. 2X ApplicationServer enables you to publish individual applications to your users' machines seamlessly, while 2X LoadBalancer is an automated load balancing/tunneling solution for Terminal Services & Citrix that enables you to distribute user sessions across terminal servers in such a way that the best performing terminal server is always selected to handle the incoming connection.

Features

Application Publishing

With 2X ApplicationServer, instead of giving your users a full desktop on your terminal servers, you can give them only the applications they need. These applications can be pushed directly to the user's desktop.

Seamless Windows capabilities

With Seamless Windows, applications running from your terminal servers will look like local applications for your users. This facilitates the introduction of server based solutions like terminal services as the remote applications co-exist with local ones and users cannot even tell the difference between them.

Greater Compatibility

2X ApplicationServer & LoadBalancer Console runs on Terminal Services both on Windows 2000 Server and Windows 2003 Server. This means you do not need to upgrade your entire infrastructure to the latest Windows Server platform if all you need is application publishing with Seamless Windows capabilities.

Cross Platform Support

2X ApplicationServer is an RDP based Application Publishing solution that supports both Linux and Mac OS X clients, all with Seamless Windows capabilities. Now it is easy to bring Windows applications to all your Linux and Mac desktops!

2X Client Gateway Service

2X Client Gateway tunnels all traffic needed by 2X applications on a single port. Now you need to open only one port on your firewall and the clients will be able to launch the published applications through the 2X Client Gateway Service.

Increased Terminal Services performance

During the login sequence, the user (using default settings) connection request is forwarded to the terminal server reporting the best performance index. This ensures that the users will never be connected to a terminal server that is using all its resources (CPU, memory, etc), optimizing user experience across the terminal server farm.

Enhanced Security

When used in SSL Gateway mode, the 2X LoadBalancer provides end-to-end SSL encryption to your terminal servers. This not only greatly enhances security but also gives you a firewall/proxy friendly solution with true SSL/HTTPS capabilities.

Reconnection capabilities

When a session gets disconnected from one of the terminal servers and the user attempts to reconnect, the 2X LoadBalancer queries all terminal servers for a disconnected session from that particular user or IP address and reconnects the user to the appropriate terminal server (some conditions apply).

Universal Printing

Printing has been one of the difficulties for administrators of server-based computing systems. 2X Universal Printer solves this issue and printing from application via RDP sessions is not different than printing form any other application. Universal Printing installs a universal driver on the Terminal Server that works with any printer.

Multiple Farms

2X Clients have the facility to connect with Multiple Farms and publish seamless applications or published desktops from multiple farms simultaneously.

Single Sign On

Single Sign-On is a module that automates the log-in process when connecting with the 2X Client Gateway and the Terminal Servers. Single Sign-On eliminates the burden on users of having to remember, and

periodically change many individual passwords, in order to access applications and data.

Web Portal

2X ApplicationServer Web Portal allows users to launch published applications and desktops from multiple farms which are accessed through a web portal according to their filter settings.

How does 2X ApplicationServer work?

2X ApplicationServer extends Windows Terminal Services by using a customized shell and virtual channel applications using the Microsoft RDP protocol. Due to these extensions, a new client is required (although it uses the same RDP protocol as mentioned above) on all computers that will be accessing the 2X ApplicationServer.

How does 2X LoadBalancer work?

2X LoadBalancer works by acquiring information from the Terminal Servers or Citrix Servers with the aid of the 2X Terminal Server Agent installed on each server. This information includes system resources and the number of sessions running on the server. With this information, 2X LoadBalancer will be able to load balance both desktops and seamless applications.

The 2X LoadBalancer can be configured to use either 'Resource based' or 'Round Robin' load balancing methods. Resource based load balancing forwards the connections to the server with the highest available resources. The Round Robin method uses a round-robin schedule, where each terminal server participates in turn, irrelevant of the status of each terminal server.

The 2X LoadBalancer offers the facility of reconnecting sessions.

INSTALLING 2X APPLICATIONSERVER & LOADBALANCER CONSOLE

2X ApplicationServer & LoadBalancer System requirements

- Windows 2000/2003 Server or Advanced Server with Terminal Services enabled (in Application Mode if using Windows 2000 Server).
- The same hardware requirements as specified by Microsoft when deploying a terminal server apply.

Installing 2X ApplicationServer & LoadBalancer

Before you run the installation procedure please make sure that you are logged on with administrator rights and that the system requirements are met.

1. Run the 2X ApplicationServer & LoadBalancer setup program by double clicking on the '**2XAppServer-LoadBalancer.msi**' file on the machine to be used as your access point to your terminal servers. A welcome dialog box will appear. Close other Windows programs and click '**Next**'.

2X ApplicationServer and LoadBalancer Setup
Welcome to the 2X ApplicationServer and LoadBalancer Setup Wizard
The Setup Wizard will install 2X ApplicationServer and LoadBalancer on your computer. Click Next to continue or Cancel to exit the Setup Wizard.
Go Thin, Go 2X
Back
Next
Cancel

Figure 1 – 2X ApplicationServer & LoadBalancer Setup Program welcome screen.

2. Accept the license agreement by enabling '**I accept the terms in the License Agreement**' checkbox.

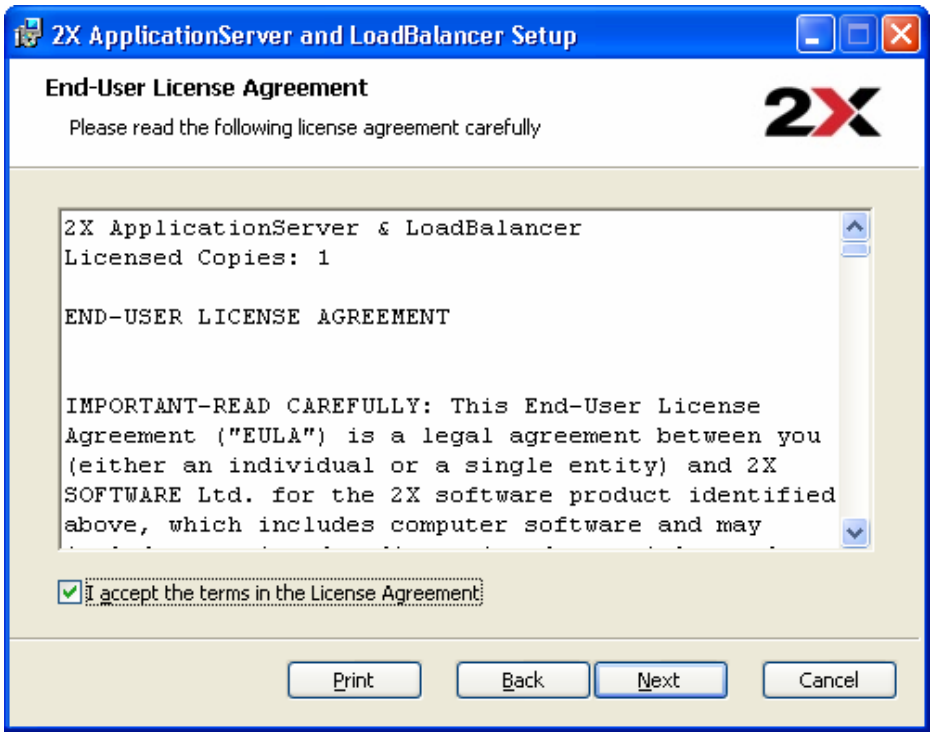
2X ApplicationServer and LoadBalancer Setup
End-User License Agreement
Please read the following license agreement carefully
2X ApplicationServer & LoadBalancer
Licensed Copies: 1
END-USER LICENSE AGREEMENT
IMPORTANT-READ CAREFULLY: This End-User License Agreement ("EULA") is a legal agreement between you (either an individual or a single entity) and 2X SOFTWARE Ltd. for the 2X software product identified above, which includes computer software and may
I accept the terms in the License Agreement
Print
Back
Next
Cancel

Figure 2 – The License Agreement.

3. Select the location where you want to install the 2X ApplicationServer & LoadBalancer and click '**Next**'.

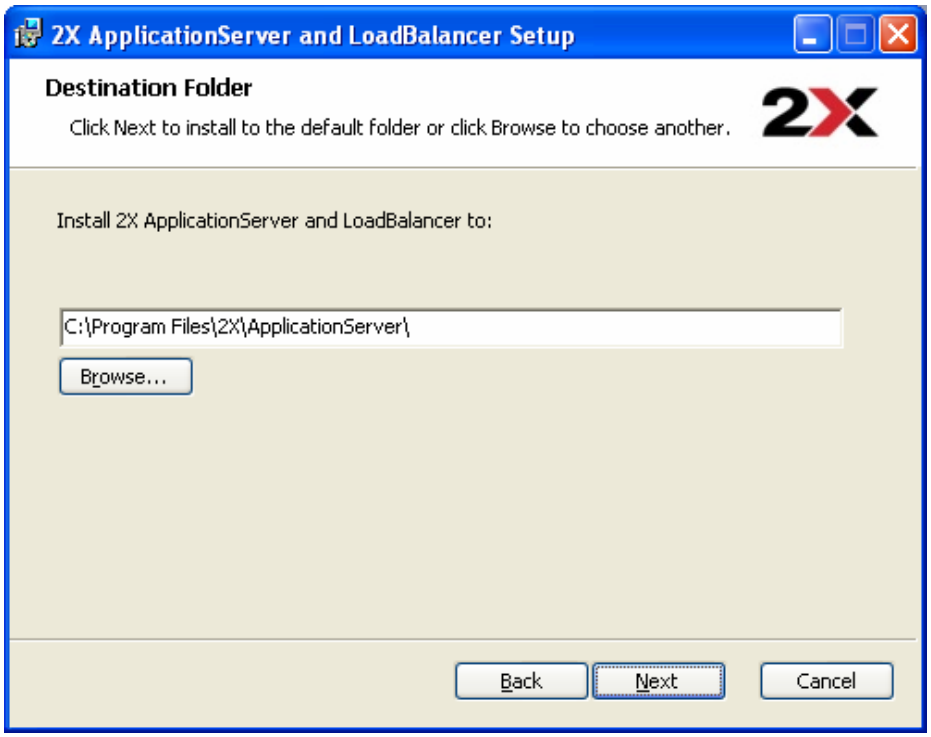

Figure 3 – Choosing the location where 2X ApplicationServer and LoadBalancer will be installed.

4. Select the desired installation type. You can select either 'Small to Medium Business Edition' or 'Enterprise Edition'. Small to Medium Business Edition is appropriate for a Single Terminal Server environment while Enterprise Edition is appropriate for Multiple Terminal Servers environment.

4.1 Small to Medium Business Edition

For a single terminal server just select the '**Small to Medium Business Edition**' radio button and this feature will install all necessary components to publish application and desktops from a Single Terminal Server. This scenario is typically used when you have one Terminal Server and you need to offer the facility of published seamless applications to your clients.

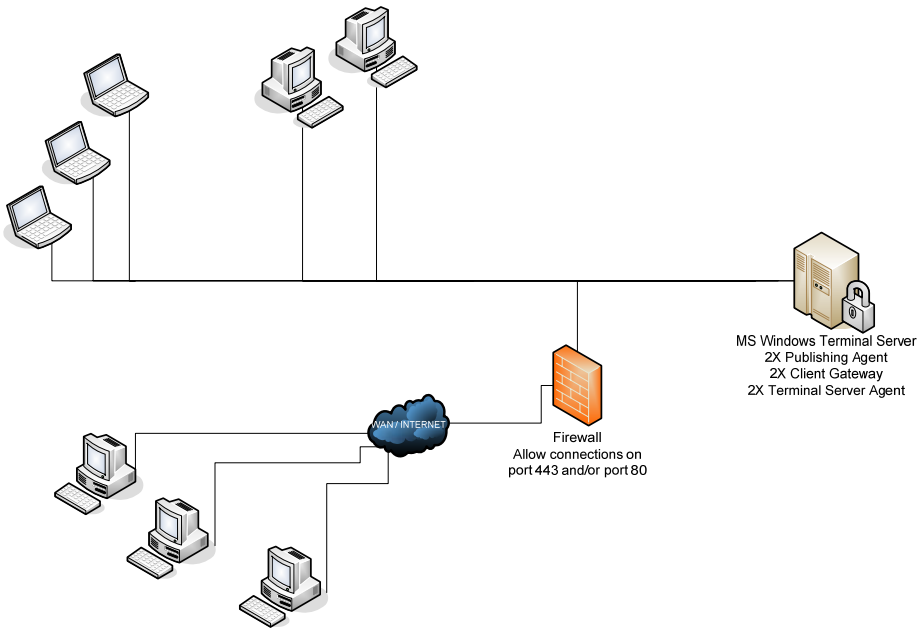

Figure 4 – Single Terminal Server scenario to publish applications and desktops from a single Terminal Server.

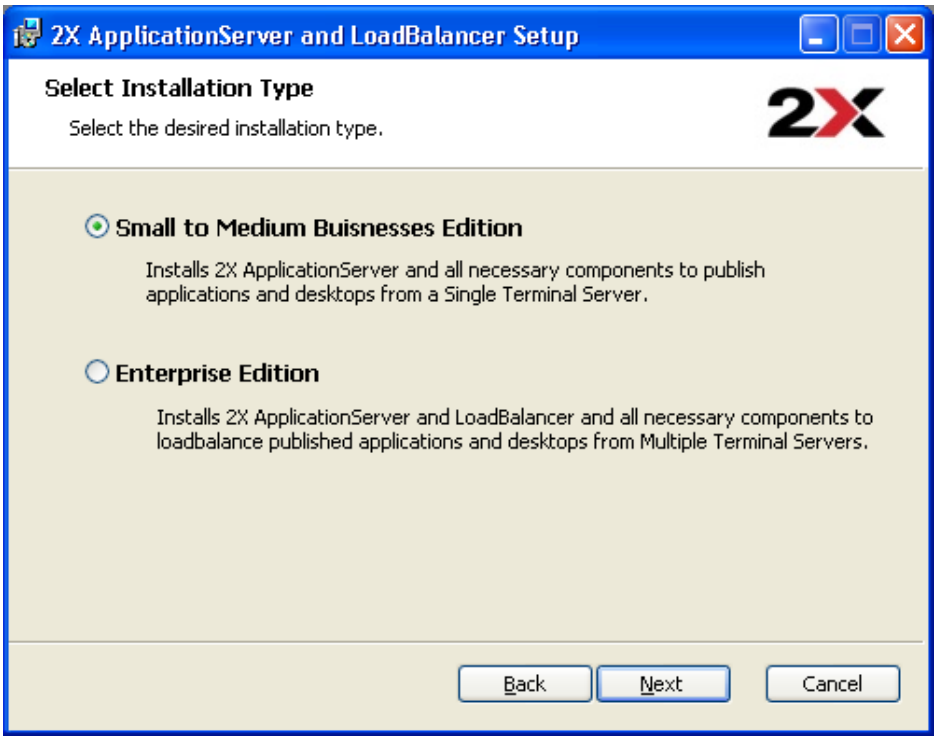
2X ApplicationServer and LoadBalancer Setup
Select Installation Type
Select the desired installation type.
2X
Small to Medium Buisnesses Edition
Installs 2X ApplicationServer and all necessary components to publish applications and desktops from a Single Terminal Server.
Enterprise Edition
Installs 2X ApplicationServer and LoadBalancer and all necessary components to loadbalance published applications and desktops from Multiple Terminal Servers.
Back
Next
Cancel

Figure 5 – Installation type – Small to Medium Business Edition

4.2 Enterprise Edition

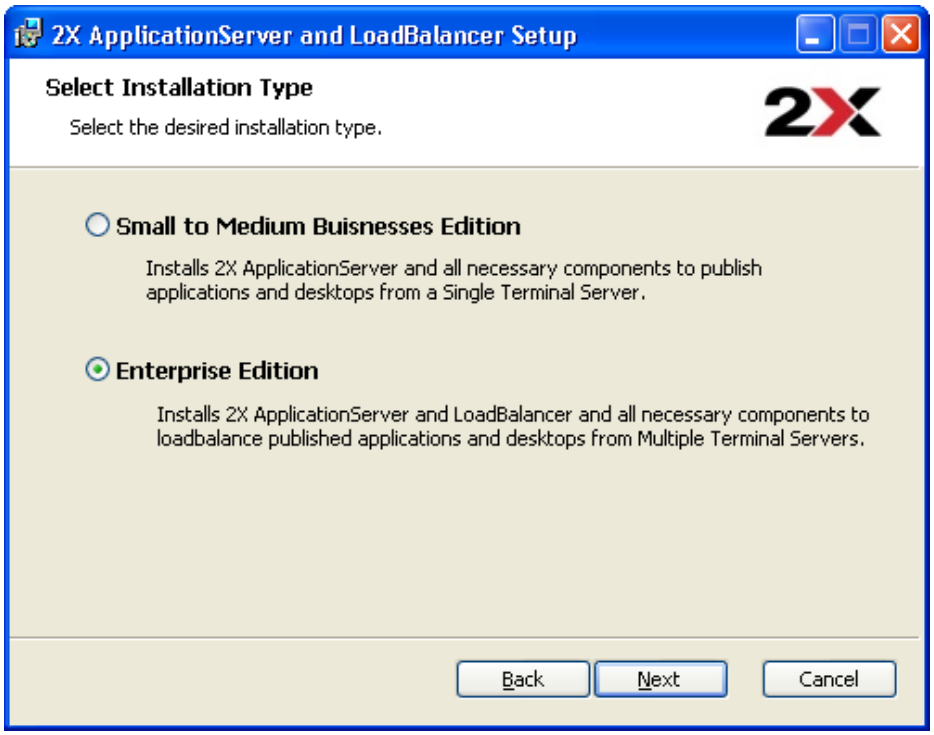
2X ApplicationServer and LoadBalancer Setup
Select Installation Type
Select the desired installation type.
2X
Small to Medium Buisnesses Edition
Installs 2X ApplicationServer and all necessary components to publish applications and desktops from a Single Terminal Server.
Enterprise Edition
Installs 2X ApplicationServer and LoadBalancer and all necessary components to loadbalance published applications and desktops from Multiple Terminal Servers.
Back
Next
Cancel

Figure 6 - Installation type – Enterprise Edition

For multiple terminal servers select the '**Enterprise Edition**' radio button. In an Enterprise Edition installation type one can choose to install:

- **2X Application Server and LoadBalancer**
- **2X Terminal Server Agent**
- **2X Client Gateway**

You have to choose what to install according to your needs and your requirements. Two common scenarios are the 'regular gateway scenario' and the 'direct mode scenario'. Please follow the below instructions how to setup such scenarios (4.2.1 or 4.2.2). For more advanced and alternative scenarios and solutions please read 2X Server Based Computing Guide.

Explanation of 2X Components

- **2X ApplicationServer and LoadBalancer** – Consists of 2X Publishing Agent service and 2X Management Console.* The service provides load balanced applications and desktop publishing.
- **2X Terminal Server Agent** – Consists of 2X Terminal Server Agent service and 2X shell component. The service collects resource information from the Terminal Server(s) and forwards the information to the 2X LoadBalancer.
- **2X Client Gateway** – Consists of 2X Client Gateway service and 2X Management Console.***** The gateway service tunnels all traffic needed by 2X applications on a single port and provides secure connections.

* The 2X Management Console is a centralized GUI application which provides the ability to configure 2X ApplicationServer and LoadBalancer.

NOTE: The 2X Management Console will display the appropriate pages according to the installation type.

4.2.1 Enterprise Edition – Regular Gateway Scenario

This solution is ideal for secure environments. Clients can connect using Gateway with the 2X Client Gateway machine. This machine will listen for RDP and will forward traffic to the MS Terminal Server according to their load status.

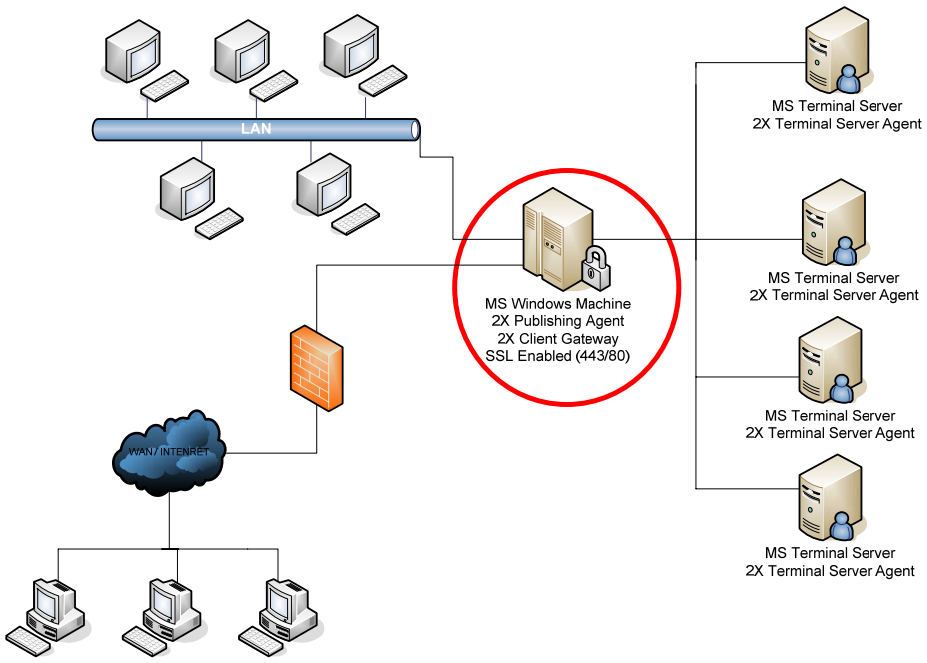

Figure 7 –Enterprise Edition - Multiple Terminal Servers - Regular Gateway Scenario (4.2.1)

A regular gateway solution is ideally used when you require a server to act as a load balancer which will only listen for RDP and forward traffic to the MS Terminal Server according to their load status, you will need to select '**2X Application Server and LoadBalancer**' and '**2X Client Gateway**' only.

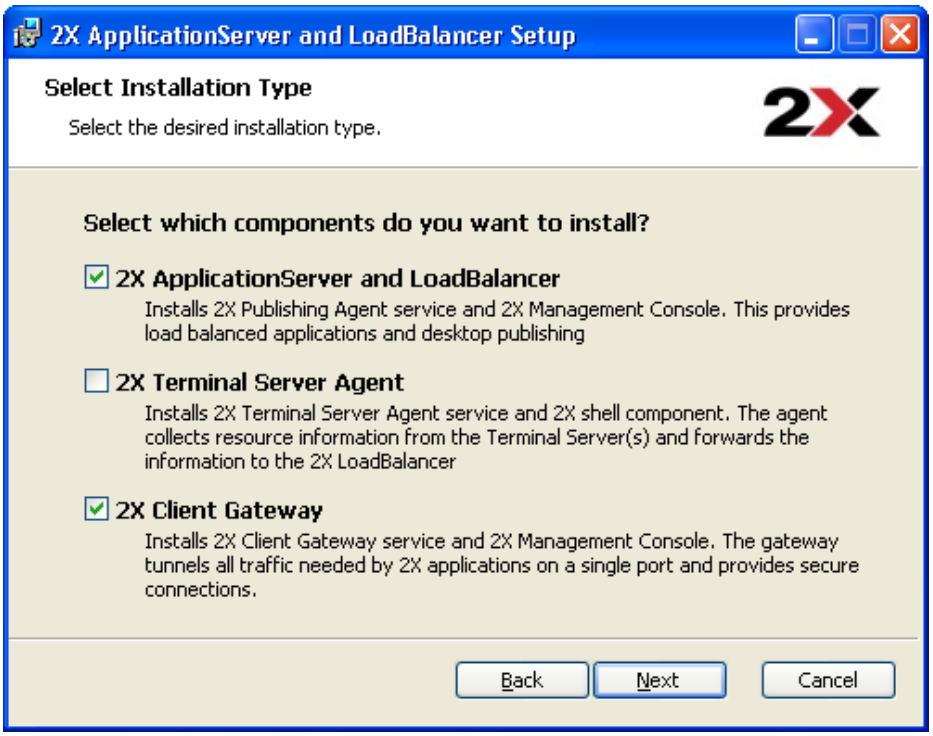
2X ApplicationServer and LoadBalancer Setup
Select Installation Type
Select the desired installation type.
2X
Select which components do you want to install?
2X ApplicationServer and LoadBalancer
Installs 2X Publishing Agent service and 2X Management Console. This provides load balanced applications and desktop publishing
2X Terminal Server Agent
Installs 2X Terminal Server Agent service and 2X shell component. The agent collects resource information from the Terminal Server(s) and forwards the information to the 2X LoadBalancer
2X Client Gateway
Installs 2X Client Gateway service and 2X Management Console. The gateway tunnels all traffic needed by 2X applications on a single port and provides secure connections.
Back
Next
Cancel

Figure 8 – Installation type – Enterprise Edition (Regular Gateway scenario)

On each Terminal Server you need to install the 2X Terminal Server Agent. This can be done by either installing the 2X Terminal Server Agents remotely from 2X Management Console while setting up the Terminal Servers or by manually installing it on every Terminal Server by running the same setup and selecting '**2X Terminal Server Agent**' only. Please refer to the chapter entitled "Installing the 2X Terminal Server Agent" for more information about how to install the 2X Terminal Server Agent.

4.2.2 Enterprise Edition – Direct Mode Scenario

This solution is ideal for LAN environments. Clients can connect using the direct mode with any MS Terminal Server. Clients will first ask the 2X Publishing Agent for the best available Terminal Server and they will connect directly to the preferred MS Terminal Server.

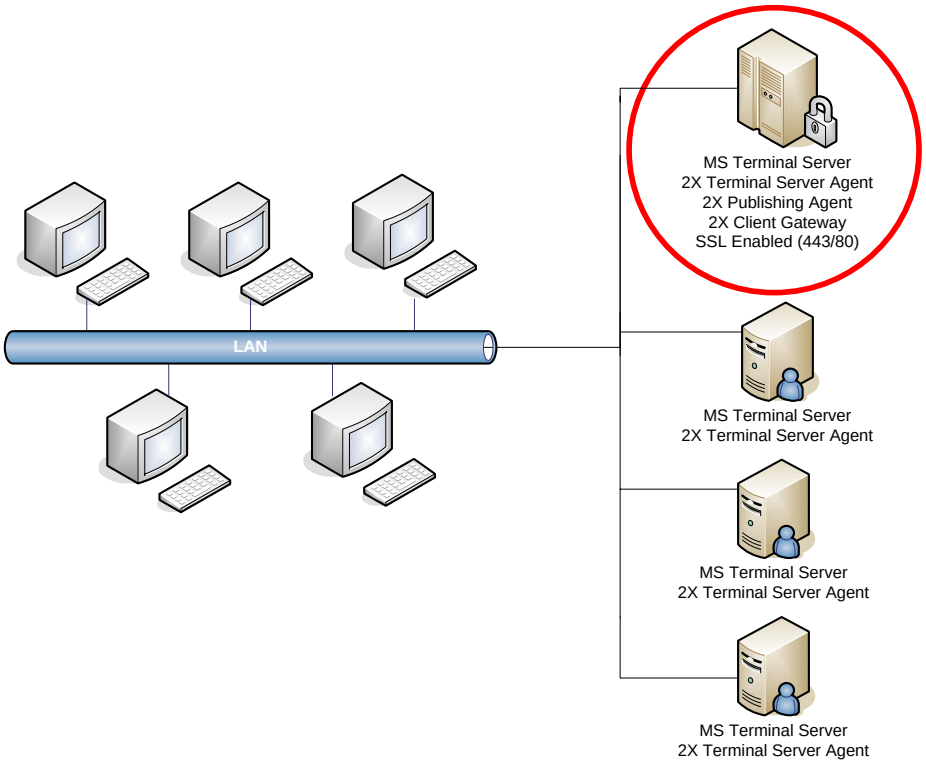

Figure 9 - Enterprise Edition – Multiple Terminal Servers - Direct Mode Scenario (4.2.2)

In this scenario you would need to select '**2X Application Server and LoadBalancer**', '**2X Terminal Server Agent**' and '**2X Client Gateway**' if this server is going to act as a terminal server.

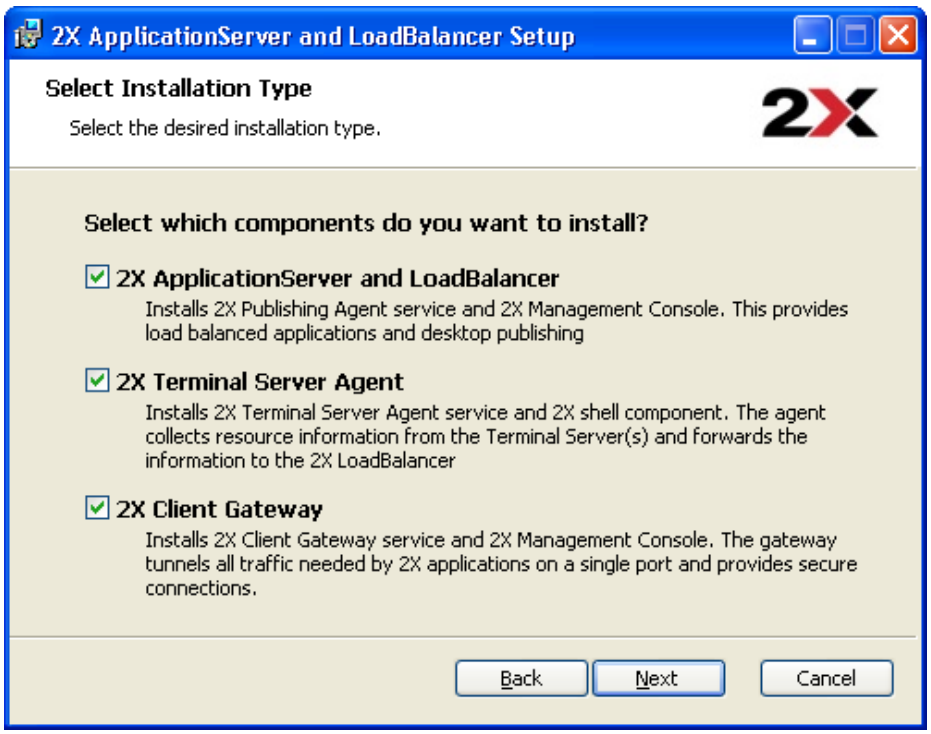
2X ApplicationServer and LoadBalancer Setup
Select Installation Type
Select the desired installation type.
2X
Select which components do you want to install?
2X ApplicationServer and LoadBalancer
Installs 2X Publishing Agent service and 2X Management Console. This provides load balanced applications and desktop publishing
2X Terminal Server Agent
Installs 2X Terminal Server Agent service and 2X shell component. The agent collects resource information from the Terminal Server(s) and forwards the information to the 2X LoadBalancer
2X Client Gateway
Installs 2X Client Gateway service and 2X Management Console. The gateway tunnels all traffic needed by 2X applications on a single port and provides secure connections.
Back
Next
Cancel

Figure 10 - Installation type – Enterprise Edition (Direct Mode Solution)

For the additional Terminal Servers, you would need to select '**2X Terminal Server Agent**' only. You may also install the 2X Terminal Server Agents remotely from 2X Console. Please refer to the chapter entitled "Installing the 2X Terminal Server Agent" for more information about how to install the 2X Terminal Server Agent.

4. Important Notice about 2X Client Gateway tunneling. (applicable only when 2X Client Gateway is installed)

To be able to tunnel all traffic through port 80, make sure that other services like web servers are running on another port (e.g. 81). You will be able to tunnel web traffic to localhost (e.g. 81) by changing the 2X Client Gateway port in the 'Connection Settings' page.

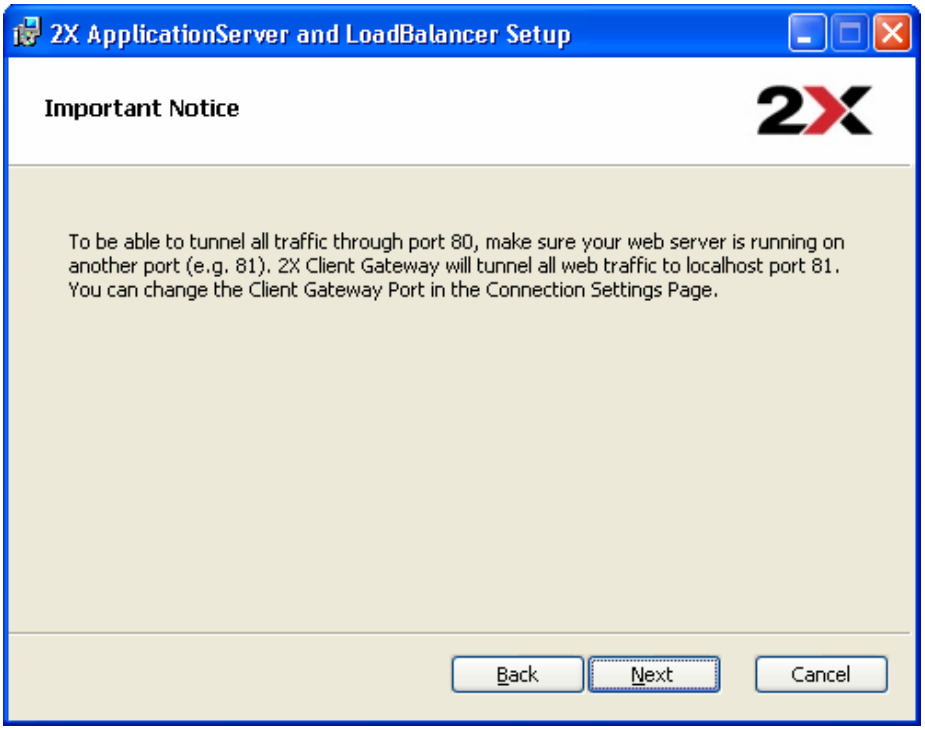
2X ApplicationServer and LoadBalancer Setup
Important Notice
2X
To be able to tunnel all traffic through port 80, make sure your web server is running on another port (e.g. 81). 2X Client Gateway will tunnel all web traffic to localhost port 81. You can change the Client Gateway Port in the Connection Settings Page.
Back
Next
Cancel

Figure 11 - Important Notice to be able to tunnel all traffic through port 80

6. Click '**Install**' to begin the installation - Setup will copy the required files and will create the service on the machine.

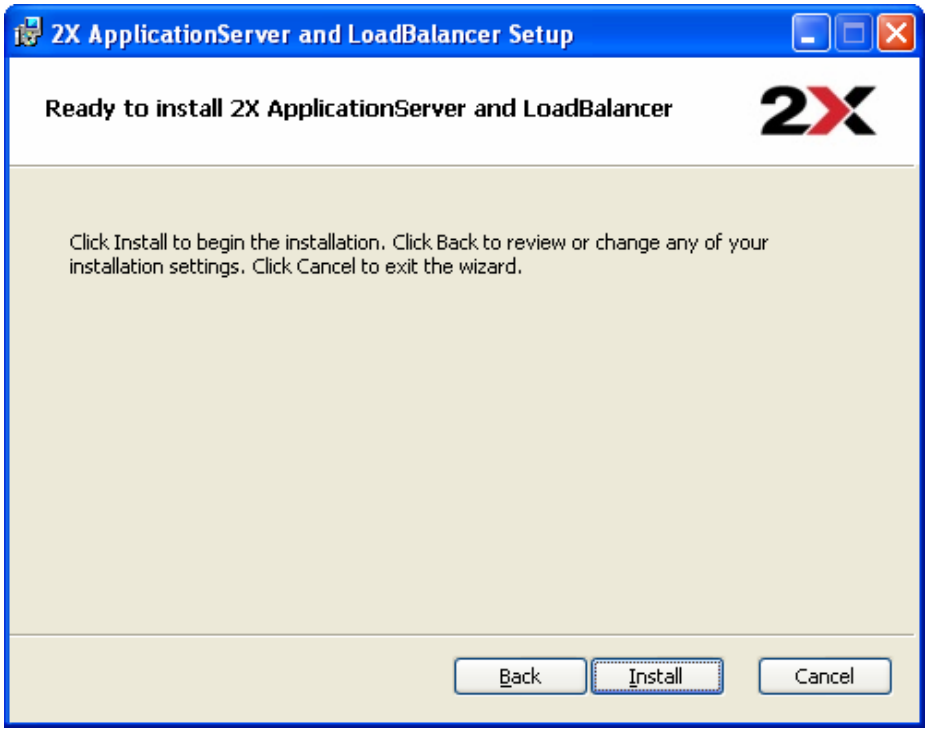
2X ApplicationServer and LoadBalancer Setup
Ready to install 2X ApplicationServer and LoadBalancer
2X
Click Install to begin the installation. Click Back to review or change any of your installation settings. Click Cancel to exit the wizard.
Back
Install
Cancel

Figure 12 – Ready to install 2X ApplicationServer & LoadBalancer

7. After the 2X ApplicationServer & LoadBalancer is installed, you should see the 2X Client Gateway, 2X Publishing Agent, 2X Redundancy Service and 2X Terminal Server Agent services listed under 'Services'. However this depends on which components you have installed.

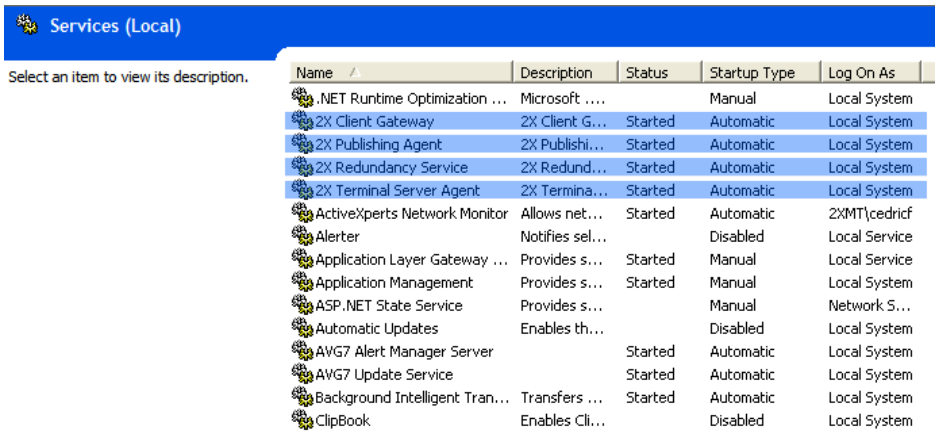
Services (Local)
Select an item to view its description.
Name
Description
Status
Startup Type
Log On As
.NET Runtime Optimization ... Microsoft .... Manual Local System
2X Client Gateway 2X Client G... Started Automatic Local System
2X Publishing Agent 2X Publishi... Started Automatic Local System
2X Redundancy Service 2X Redund... Started Automatic Local System
2X Terminal Server Agent 2X Termina... Started Automatic Local System
ActiveXperts Network Monitor Allows net... Started Automatic 2XMT\cedricf
Alerter Notifies sel... Disabled Local Service
Application Layer Gateway ... Provides s... Started Manual Local Service
Application Management Provides s... Started Manual Local System
ASP.NET State Service Provides s... Manual Network S...
Automatic Updates Enables th... Disabled Local System
AVG7 Alert Manager Server Started Automatic Local System
AVG7 Update Service Started Automatic Local System
Background Intelligent Tran... Transfers ... Started Automatic Local System
ClipBook Enables Cli... Disabled Local System

Figure 13 – The 2X Client Gateway, 2X Publishing Agent and, 2X Redundancy Server and 2X Terminal Server Agent Services

NOTE: The 30-day trial version and the full version of the application are the same program. To re-enable the product after the 30-day trial period has expired, the only action necessary will be to enter a valid license key in the Licensing page. Re-installation will not be necessary.

Entering your License key after installation

If you have purchased 2X ApplicationServer or 2X LoadBalancer, you can enter your License key in the 'Licensing' page from the navigation bar and click '**Activate…**'.

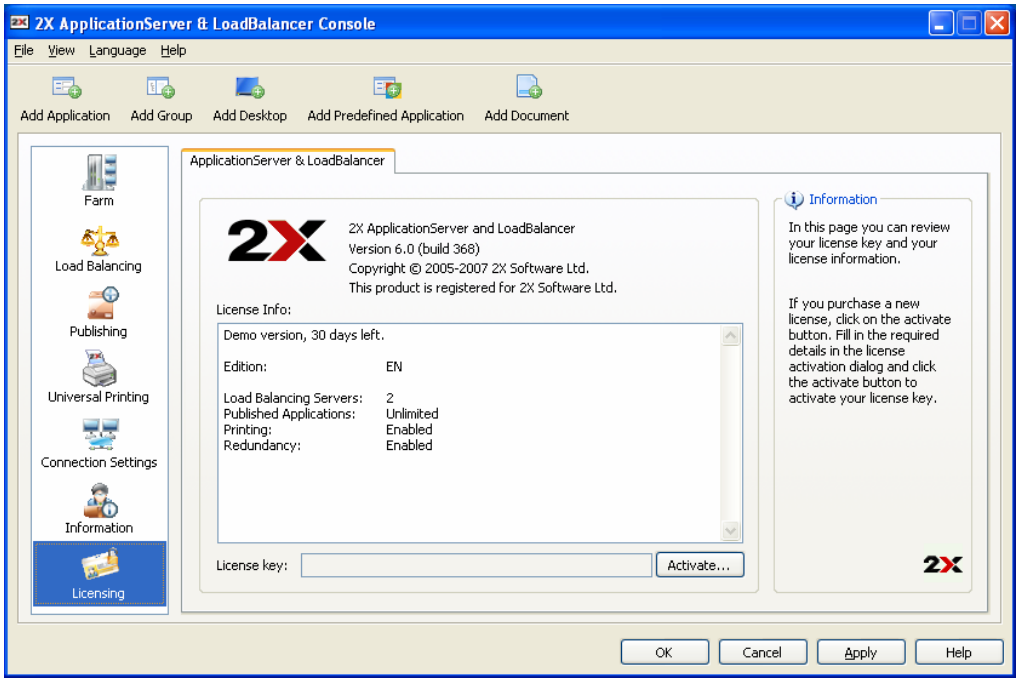

Figure 14 - Registering the product

If you are evaluating the 2X ApplicationServer, it will time out after 30 days (with no key). If you then decide to purchase the 2X ApplicationServer, the only action required is to enter the License key here without having to re-install. 2X ApplicationServer is currently licensed on a per-terminal server farm basis. This means you must have a license for each terminal server farm where you install the 2X ApplicationServer product. At this moment there are no limitations on the number of connections to the 2X ApplicationServer (other than resource limitations). After the trial period expires you will be limited to five connections per server.

If you are evaluating the 2X LoadBalancer, it will time out after 30 days (with no key) and you are limited to two terminal servers only. If you then decide to purchase the 2X LoadBalancer, you can just enter the License key here without having to re-install. 2X Load Balancer is licensed on a per-server and per-terminal server basis. This means you must have a license for the load balancer itself and licenses for each terminal server to be load balanced. The base license comes with two (2) terminal server licenses. If you need to load balance more than two (2) terminal servers, additional licenses will be required. After the trial period expires you will be limited to one server.

INSTALLING THE 2X TERMINAL SERVER AGENT

2X Terminal Server Agent System requirements

- Windows 2000 + SP4 / 2003 Server and later with Terminal Services installed (in application server mode if using Windows 2000 Server)
- The same hardware requirements as specified by Microsoft when deploying a terminal services environment will apply.

Installing the 2X Terminal Server Agent remotely from 2X Console

2X ApplicationServer & LoadBalancer offers the facility to install the 2X Terminal Server Agent on each Terminal Server remotely from the 2X Console. This feature gives you the facility to control each Terminal Server from one central place.

In order to be able to install the 2X Terminal Server Agents remotely, you must make sure that:

- You have administrative credentials to be able to install the required service.
- The service 'server' is running on the Terminal Server where you intent to install the Terminal Server agent. This service is offered by MS Windows and is used for file, print, and named-pipe sharing over the network. This service is used to install the 2X Terminal Server Agents remotely.

1. Launch the 2X ApplicationServer & LoadBalancer Console and select the Terminal Servers category.

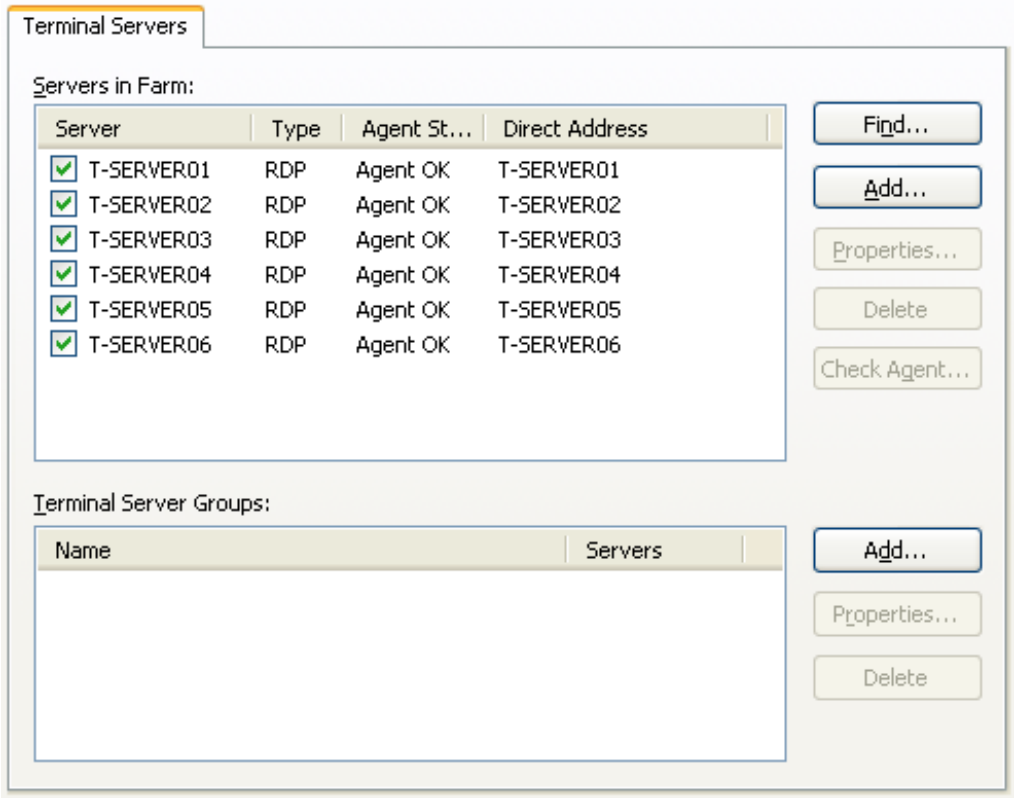

Figure 15 - Terminal Server page to add additional Terminal Server agents

2. Click the '**Find…**' button to find the available Terminal Servers or Citrix Servers. All Terminal Servers and Citrix Servers within your domain will appear on the list of available servers to your farm. The 'Agent' status column gives the ability to identify whether the 2X Terminal Server Agent is installed or not. Therefore 'Agent OK' indicates that the 2X Terminal Server Agent is installed on the particular Server while 'Agent not found' indicates that the 2X Terminal Server Agent is not installed and you'll need to install it if you intend to use this particular server in your farm.

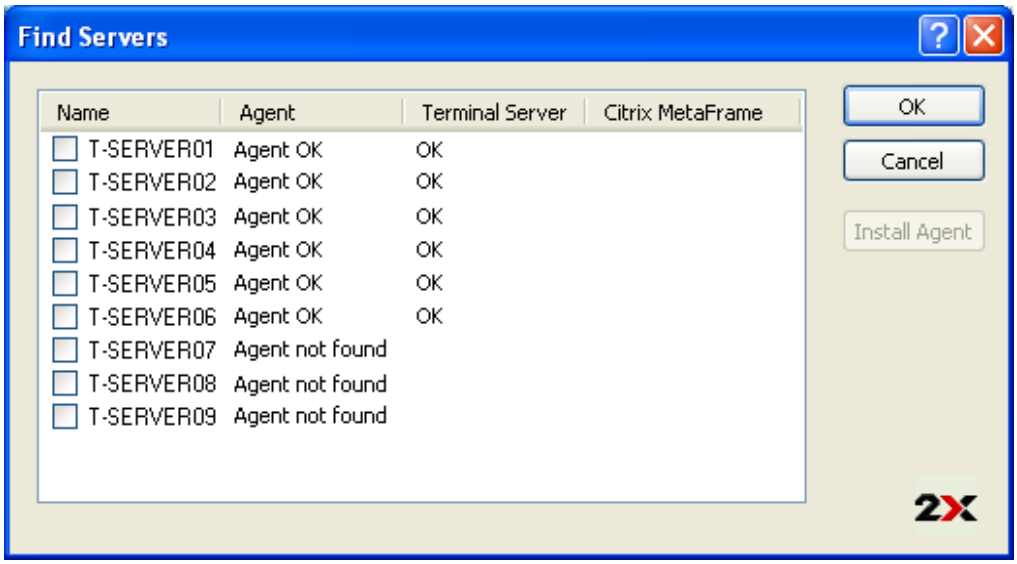

Figure 16 - Choose a Terminal Server to install agent

3. Select the Terminal Server where you would like to install the 2X Terminal Server Agent and click '**Install Agent**'.

4. Enter administrative credentials to access the remote server.

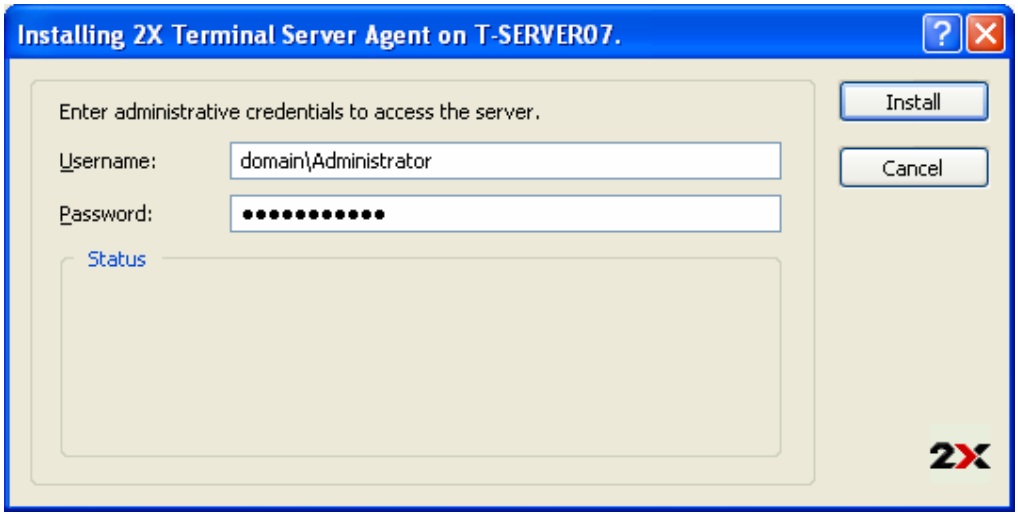

Figure 17 - Enter administrative credentials to install the 2X Terminal Server agent

5. Click '**Install**' after you've entered the administrative credentials. You should note that service is installed successfully if the installation is done completely.

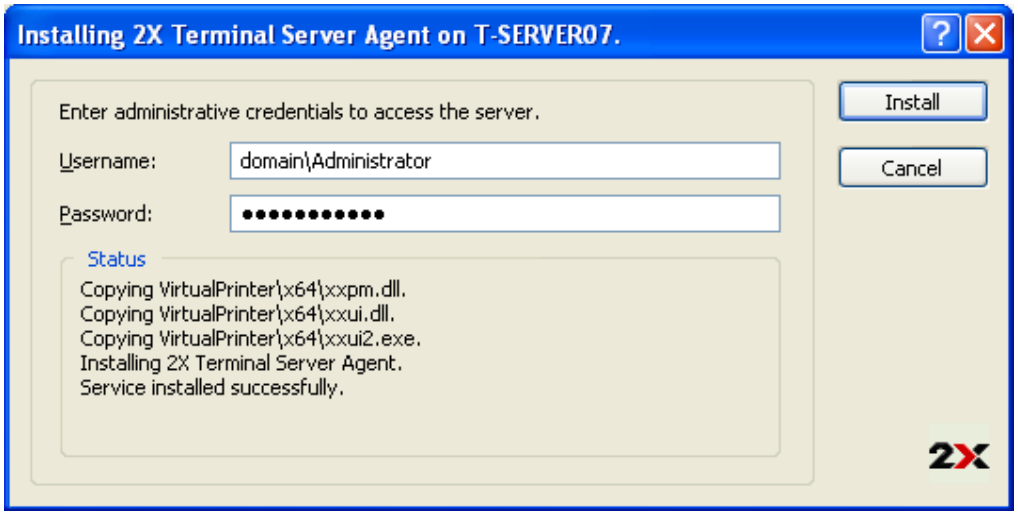

Figure 18 - 2X Terminal Server agent Installation process

6. Click 'Done' when finished.

Installing the 2X Terminal Server Agent Manually

Before starting the installation procedure, please make sure that you are logged on with administrator rights, and that the system requirements are met.

1. Log on to the Terminal Server or Citrix Server
2. Run the 2X Terminal Server Agent setup program by double clicking on the '**2XAppServer-LoadBalancer.msi**' file. A welcome dialog will appear. Close other Windows programs and click '**Next**'.

2X ApplicationServer and LoadBalancer Setup
Welcome to the 2X ApplicationServer and LoadBalancer Setup Wizard
The Setup Wizard will install 2X ApplicationServer and LoadBalancer on your computer. Click Next to continue or Cancel to exit the Setup Wizard.
Go Thin, Go 2X
Back
Next
Cancel

Figure 19 – 2X Terminal Server Agent Setup Program welcome screen.

3. Accept the License Agreement and click '**Next**'.

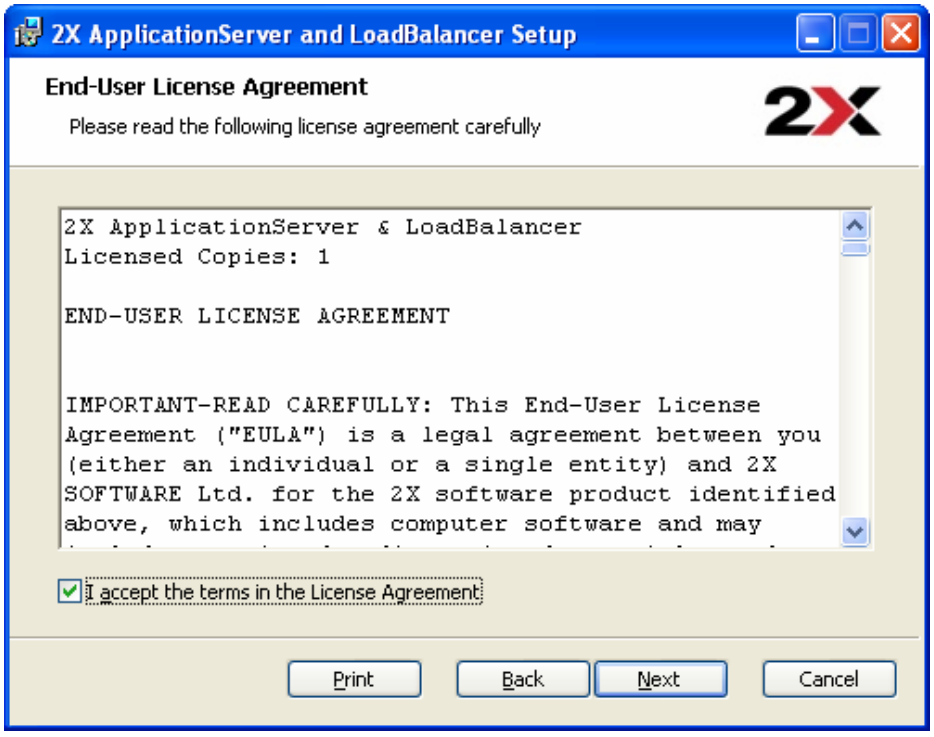
2X ApplicationServer and LoadBalancer Setup
End-User License Agreement
Please read the following license agreement carefully
2X ApplicationServer & LoadBalancer
Licensed Copies: 1
END-USER LICENSE AGREEMENT
IMPORTANT-READ CAREFULLY: This End-User License Agreement ("EULA") is a legal agreement between you (either an individual or a single entity) and 2X SOFTWARE Ltd. for the 2X software product identified above, which includes computer software and may
I accept the terms in the License Agreement
Print
Back
Next
Cancel

Figure 20 – The EULA.

4. Select the location where you want to install the 2X Terminal Server Agent and click '**Next**'.

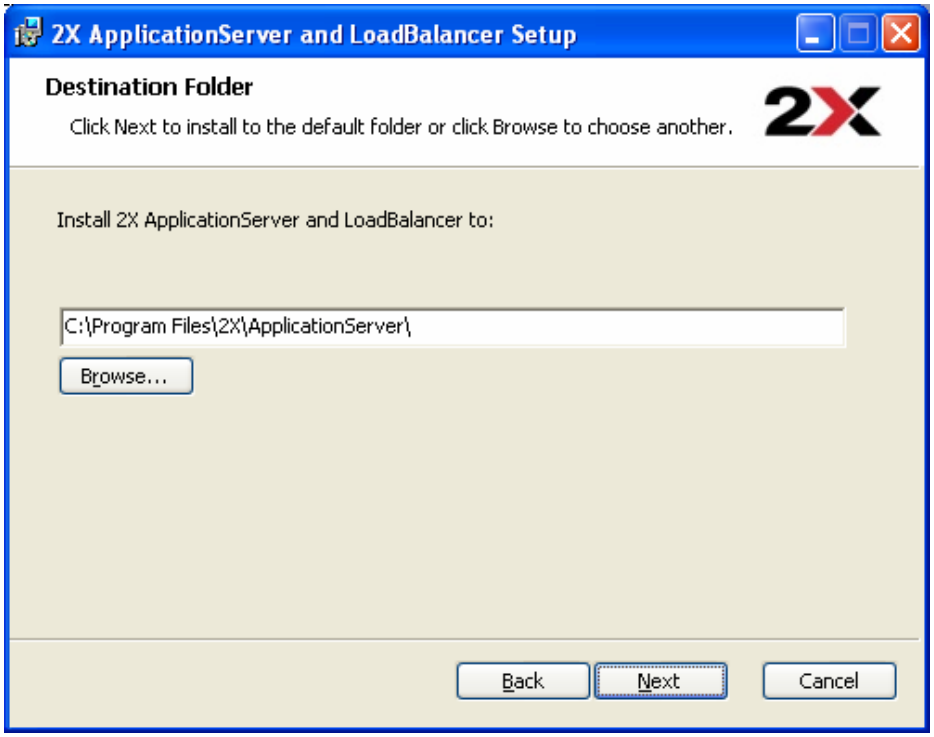

Figure 21 – Choosing the location where 2X Terminal Server Agent will be installed.

5. First select the '**Enterprise Edition**' radio button as the Installation type.

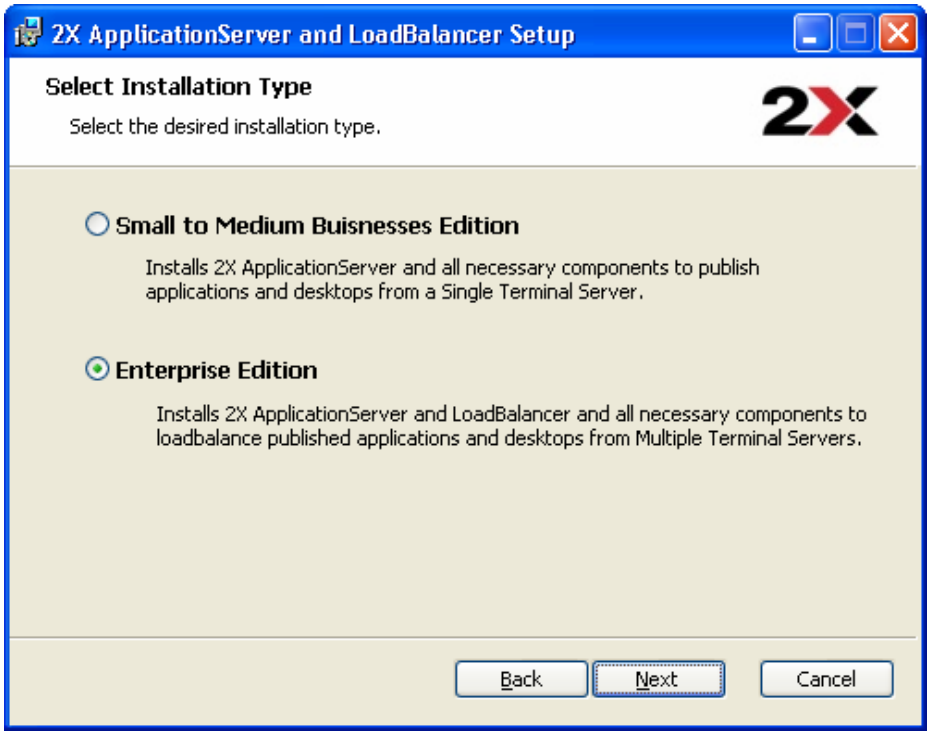
2X ApplicationServer and LoadBalancer Setup
Select Installation Type
Select the desired installation type.
2X
Small to Medium Buisnesses Edition
Installs 2X ApplicationServer and all necessary components to publish applications and desktops from a Single Terminal Server.
Enterprise Edition
Installs 2X ApplicationServer and LoadBalancer and all necessary components to loadbalance published applications and desktops from Multiple Terminal Servers.
Back
Next
Cancel

Figure 22 – Select Installation type: Enterprise Edition.

6. Select '**2X Terminal Server Agent**' checkbox only as shown in the figure below and click '**Next**'.

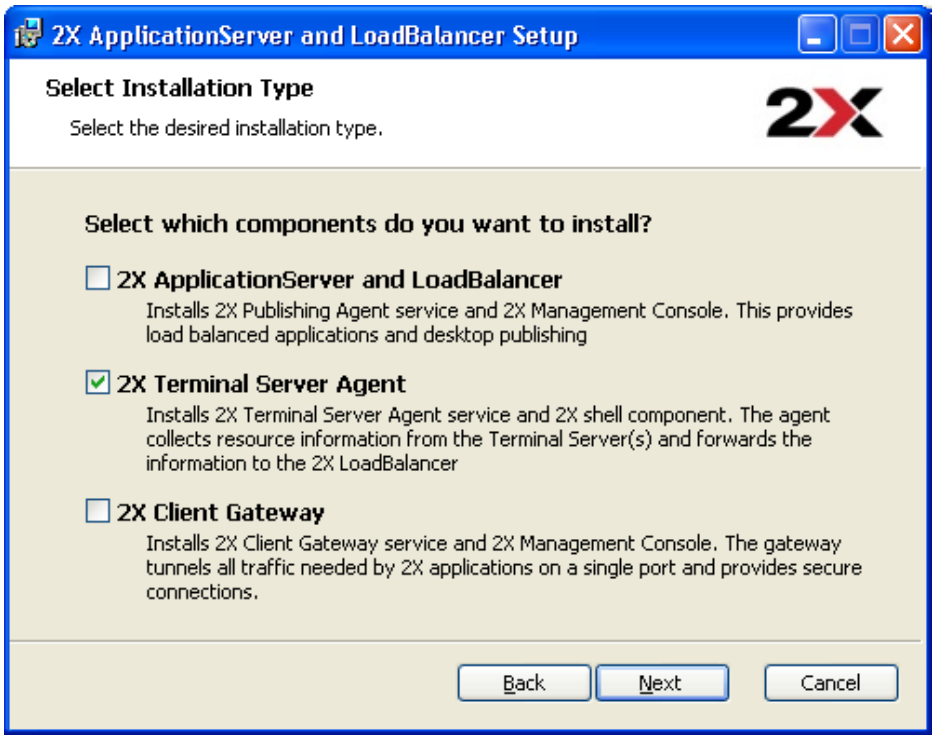
2X ApplicationServer and LoadBalancer Setup
Select Installation Type
Select the desired installation type.
2X
Select which components do you want to install?
2X ApplicationServer and LoadBalancer
Installs 2X Publishing Agent service and 2X Management Console. This provides load balanced applications and desktop publishing
2X Terminal Server Agent
Installs 2X Terminal Server Agent service and 2X shell component. The agent collects resource information from the Terminal Server(s) and forwards the information to the 2X LoadBalancer
2X Client Gateway
Installs 2X Client Gateway service and 2X Management Console. The gateway tunnels all traffic needed by 2X applications on a single port and provides secure connections.
Back
Next
Cancel

Figure 23 – Select Installation type: Enterprise Edition - 2X Terminal Server Agent.

7. To start the actual installation process, simply click '**Install**'.

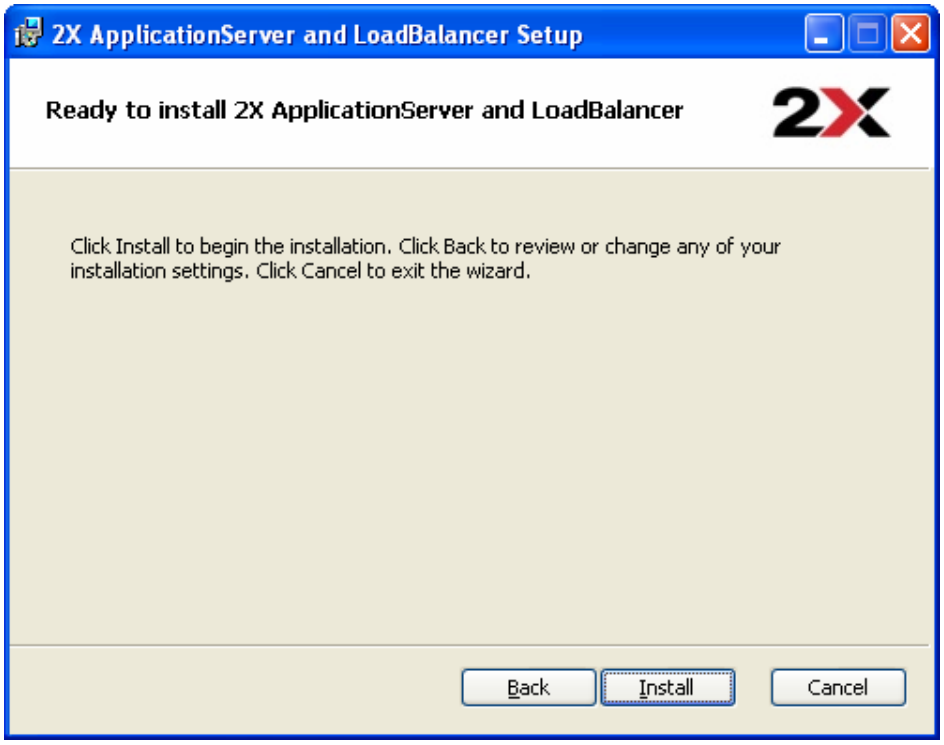
2X ApplicationServer and LoadBalancer Setup
Ready to install 2X ApplicationServer and LoadBalancer
2X
Click Install to begin the installation. Click Back to review or change any of your installation settings. Click Cancel to exit the wizard.
Back
Install
Cancel

Figure 24 – Starting the installation program.

8. Setup will copy the required files and will create the service on the machine. After finishing you will see the status screen.

2X ApplicationServer and LoadBalancer Setup
Completed the 2X ApplicationServer and LoadBalancer Setup Wizard
Click the Finish button to exit the Setup Wizard.
Go Thin, Go 2X
Back
Finish
Cancel

Figure 25 – Post-Installation status screen.

After the installation is complete (Remotely or manual), you should see the '2X Terminal Server Agent' service listed under 'Services' on the server where the agent has been installed.

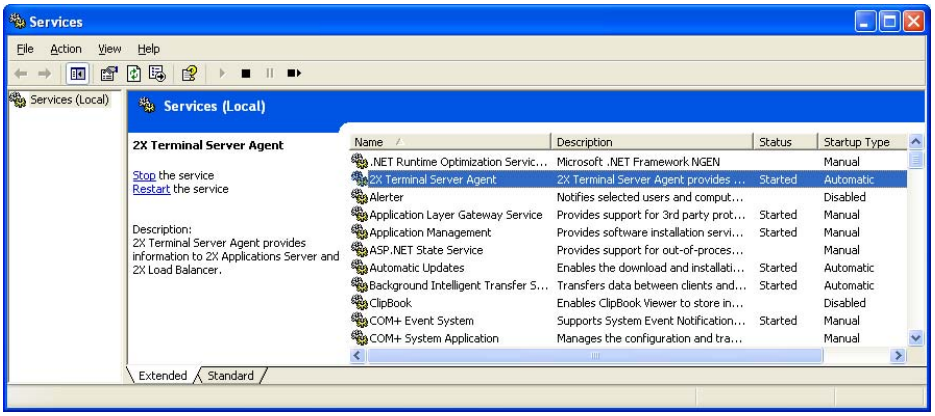
Services
File Action View Help
Services (Local)
Services (Local)
2X Terminal Server Agent
Stop the service
Restart the service
Description:
2X Terminal Server Agent provides information to 2X Applications Server and 2X Load Balancer.
Name
Description
Status
Startup Type
.NET Runtime Optimization Servic... Microsoft .NET Framework NGEN Manual
2X Terminal Server Agent 2X Terminal Server Agent provides ... Started Automatic
Alerter Notifies selected users and comput... Disabled
Application Layer Gateway Service Provides support for 3rd party prot... Started Manual
Application Management Provides software installation servi... Started Manual
ASP.NET State Service Provides support for out-of-proces... Manual
Automatic Updates Enables the download and installati... Started Automatic
Background Intelligent Transfer S... Transfers data between clients and... Started Automatic
ClipBook Enables ClipBook Viewer to store in... Disabled
COM+ Event System Supports System Event Notification... Started Manual
COM+ System Application Manages the configuration and tra... Manual
Extended Standard

Figure 26 – The 2X Terminal Server Agent Service

NOTE: The terminal servers do not require configuration. The agent will collect the information required by the 2X Publishing Agent. Subsequently, the 2X Terminal Server Agent will forward the necessary information to the 2X Publishing Agent using the information collected. To ensure connectivity between 2X Publishing Agent and the terminal servers, after installing the 2X Terminal Server Agent, go to the Console GUI and on the Terminal Servers tab in the **Terminal Server** page make sure you add all your terminal servers. Once you have finished this step, select a terminal server (one at a time) and press the '**Check Agent**' button. If the 2X Publishing Agent can communicate with the 2X Terminal Server Agent running on the terminal server, you will receive this message:

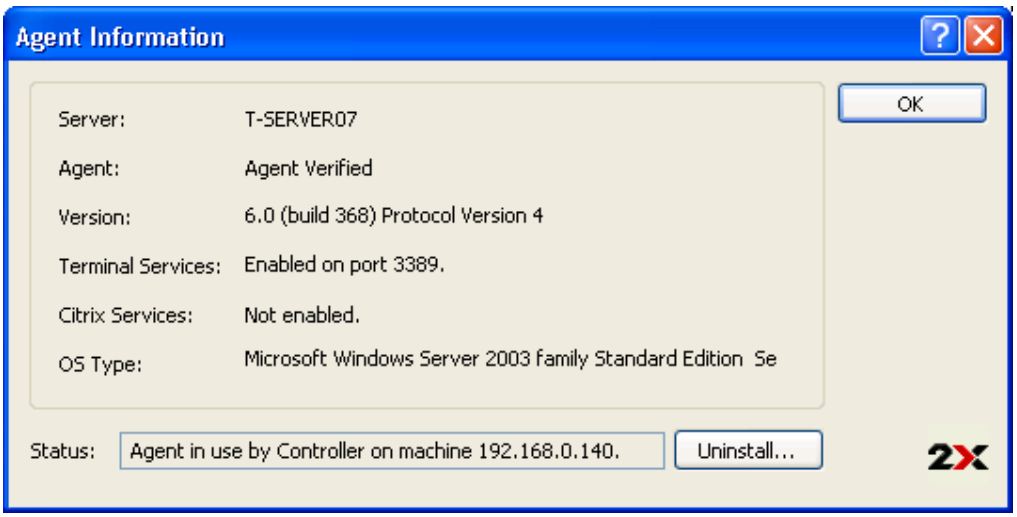
Agent Information
OK
Server: T-SERVER07
Agent: Agent Verified
Version: 6.0 (build 368) Protocol Version 4
Terminal Services: Enabled on port 3389.
Citrix Services: Not enabled.
OS Type: Microsoft Windows Server 2003 family Standard Edition Se
Status: Agent in use by Controller on machine 192.168.0.140.
Uninstall...
2X

Figure 27 – Checking for 2X Terminal Server Agent on a terminal server.

CONFIGURING 2X APPLICATIONSERVER & LOADBALANCER CONSOLE

Introduction to the configuration

After you have installed 2X ApplicationServer & LoadBalancer Console, you can now launch the Console GUI and further configure it.

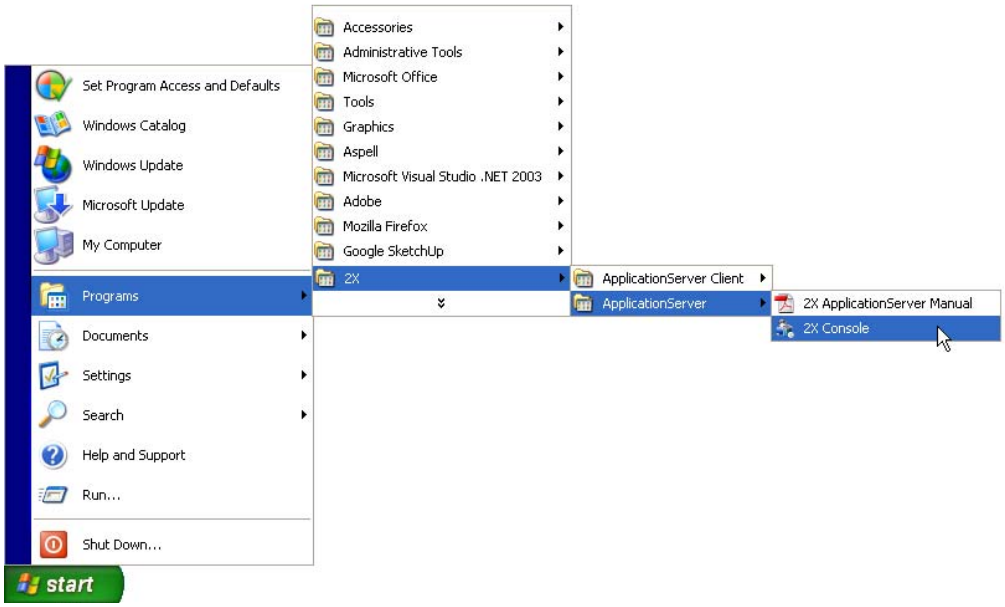

Figure 28 – Launching the 2X ApplicationServer & LoadBalancer Console

To open the 2X ApplicationServer & LoadBalancer Console:

Start > [All] Programs > 2X > ApplicationServer > 2X Console

Understanding the Console Environment

The 2X ApplicationServer & LoadBalancer Console is a completely self-contained environment for publishing seamless applications, load balancing published desktop sessions, load balancing seamless applications, and load balancing Terminal Server and/or Citrix sessions.

Components of the System

- **Farm**

  In this page you can add Microsoft Terminal Servers and Citrix Servers to the farm.

- **Load Balancing**

  In this page you can choose the load balancing method to be used.

- **Publishing**

  In this page you can publish applications, application groups and desktops in a seamless way.

- **Universal Printing**

  In this page you can enable Universal Printing to each Terminal Server.

- **Connection Settings**

  In this page you may configure which port to use for each service.

- **Information**

  In this page you can find information about the modules used, enable logging, and enable notification.

- **Licensing**

  In this page you can review your license number for 2X ApplicationServer and 2X LoadBalancer products.

Console Environment – Publishing page

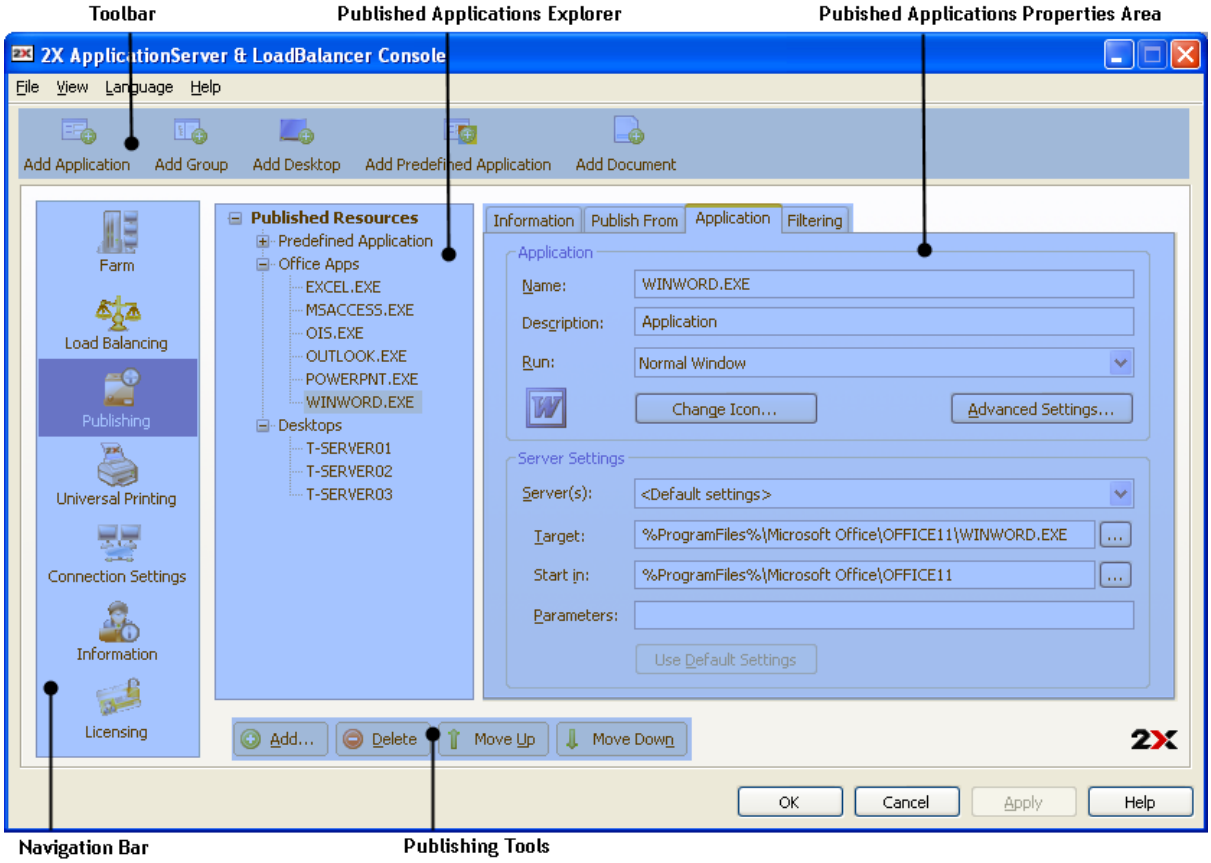

Figure 29 - Console Environment – 2XApplicationServer

The area to the left in above figure is the Navigation Bar, the right area shows the Published Applications Properties, the area in between represents the Published Applications Explorer while the area at the bottom represents the Publishing Tools.

- The **Navigation Bar** enables you to navigate through the main features offered by 2X ApplicationServer & LoadBalancer Console. You can also select which main features are to be displayed from the View Menu.
- The **Published Applications Explorer** is a navigational tree which represents the organization of your published applications, application groups and desktops.
- The **Published Applications Properties** Area has up to four additional tabs that display 'Information', 'Publish From', 'Application' and 'Filtering' for each published application.

- In the **Publishing Tools** area you have the possibilities to add new published applications and organize them. From this are you also have the possibility to publish your applications to the web.
- The **Toolbar** consists of a set of tools grouped together to provide quick and convenient access to commonly-performed operations.

Console Environment – Farm, Load Balancing, Universal Printing, Connection Settings, Information and Licensing pages.

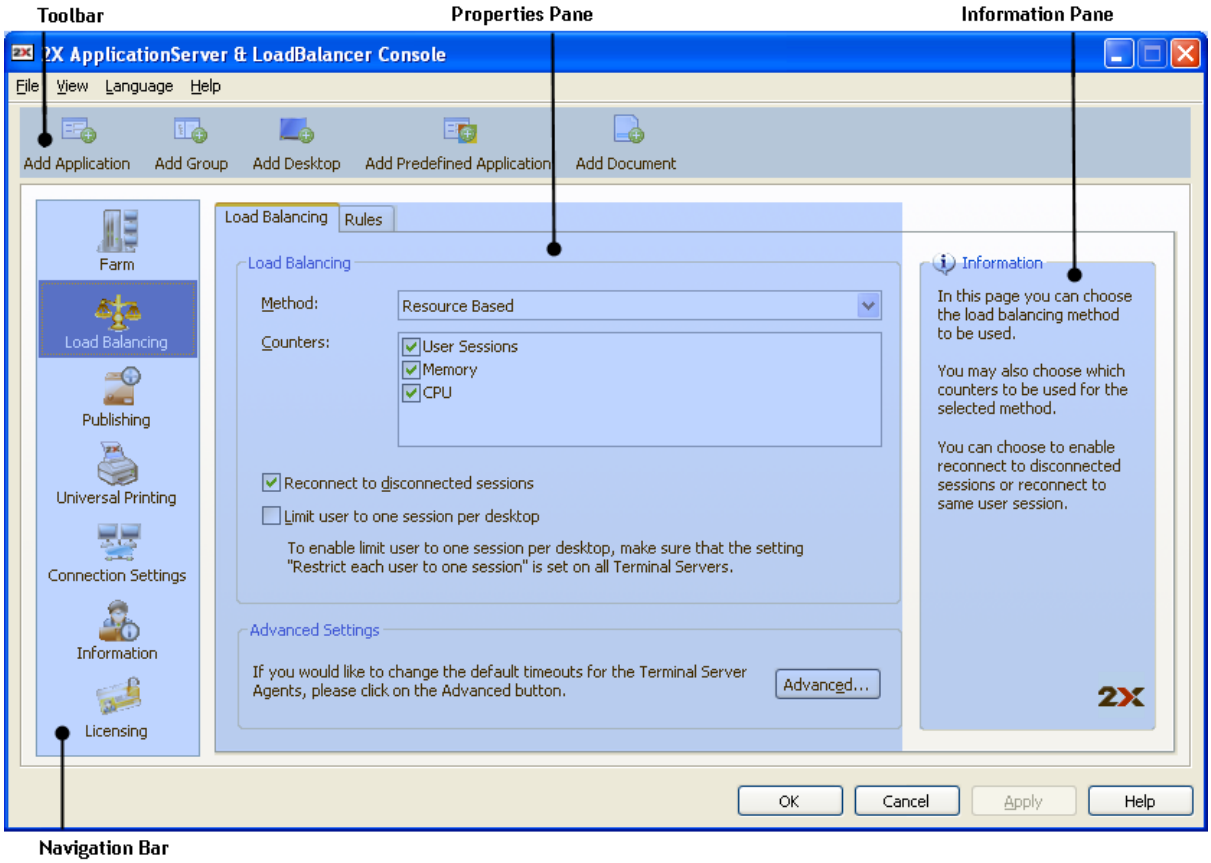

Figure 30 - Console Environment – Farm, Load Balancing, Universal Printing, Connection Settings, Information and Licensing pages

The area to the left in the above figure is the Navigation Bar, the right area show the Information Pane, while the area in between represents the Properties Pane.

- The **Navigation Bar** enables you to navigate through the main features offered by 2X ApplicationServer & LoadBalancer Console. You can also select which main features are to be displayed from the View Menu.
- The **Properties Pane** is the main area from where you can edit and modify each configuration.
- The **Information Pane** gives a quick look and summary about the particular selected page.
- The **Toolbar** consists of a set of tools grouped together to provide quick and convenient access to commonly-performed operations.

Main 2X ApplicationServer & LoadBalancer Console Settings

Backup & Restore

2X ApplicationServer & LoadBalancer gives you the ability to backup and restore the configuration. The entire configuration is saved to a '.dat' file in XML format. This can be useful to backup the configuration or distribute the same settings across other 2X Consoles.

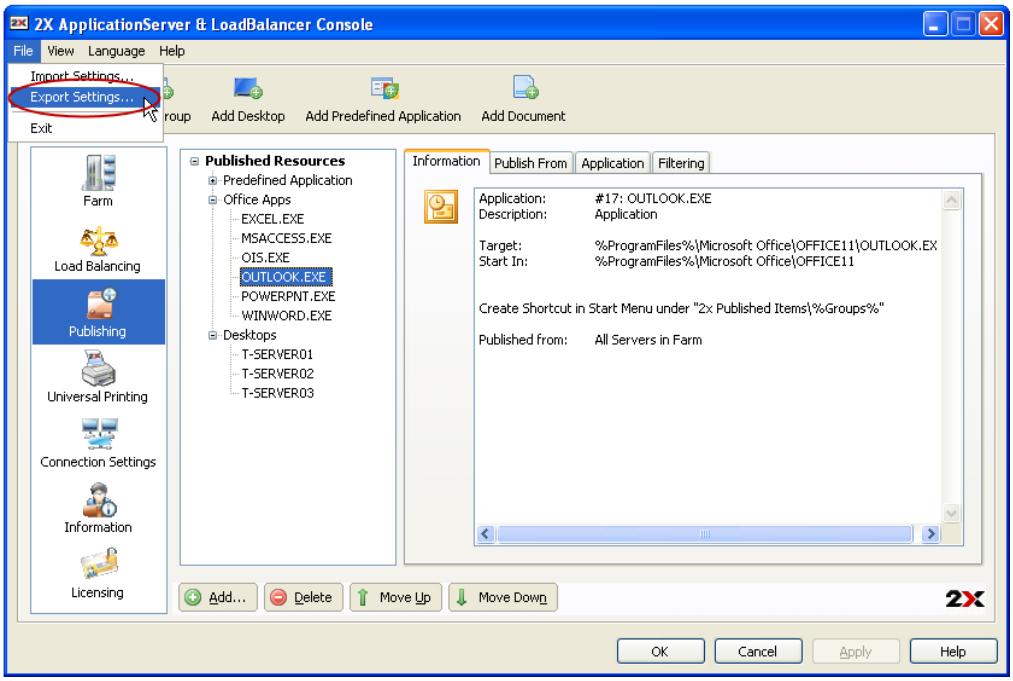

Figure 31 - File – Import Settings and Export Settings

To **backup settings** – Click File and 'Export Settings…' and save the .dat file in a safe place.

To **restore settings** – Click file and 'Import Settings…' and open the .dat file. The settings will be retrieved and activated after you click the 'Apply' button.

The configuration files include all the settings that you're able to configure through the console. This includes the list of terminal servers, load balancing methods, list of applications, connection settings and the license keys.

This can be useful to backup the configuration and distribute the same settings across other installations of 2X ApplicationServer & LoadBalancer Console.

View

The View Menu enables you to navigate through the main features offered by 2X ApplicationServer & LoadBalancer Console. One can also choose to view or not to view the toolbar from this menu.

Language

To change the Language to your preferred language, click the 'Language' from the Main Menu. This function allows you to change the language that is displayed in your 2X Console interface. The default language will use the language that is configured in the Regional and Language Options.

User Manual

To access this manual while you're using the Console, click the 'Help' from the Main Menu and select 'Manual…'.

Context Help

To obtain contextual help about a particular field or control in the console, click 'Help' from the Main Menu and select 'Context Help'. This Context Help will be shown as active when the mouse pointer is changed to a '?' pointer. Clicking items with this pointer will display the relevant help for the particular field or control. You may also use the 'F1' button or the 'Help' button located in the right-bottom of the console to display the contextual help.

Order Online

To order online while you're using the Console click 'Help' from the Main Menu and select 'Order online…'. A new page will open in your default browser which will guide you how to order this product.

Toolbar Settings

To customize the toolbar, right click in the Toolbar area and select 'Customize…'. One can customize the button and icon view according to his ..

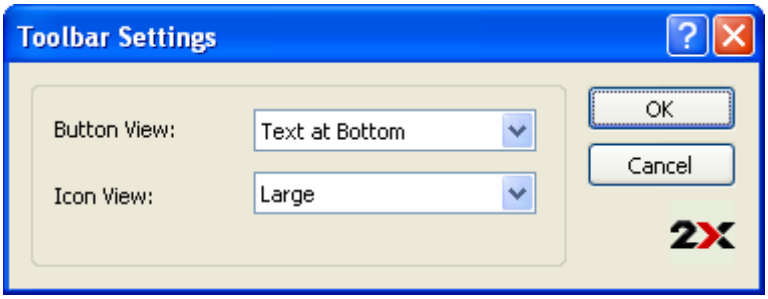

Figure 32 - Toolbar Settings

GENERAL TERMINAL SERVICES CONFIGURATION

2X ApplicationServer & LoadBalancer Services

To start, stop and configure 2X ApplicationServer & LoadBalancer Services, run the Microsoft Management Console 'Services.msc'. 2X ApplicationServer & LoadBalancer services are configured to start automatically when the system starts.

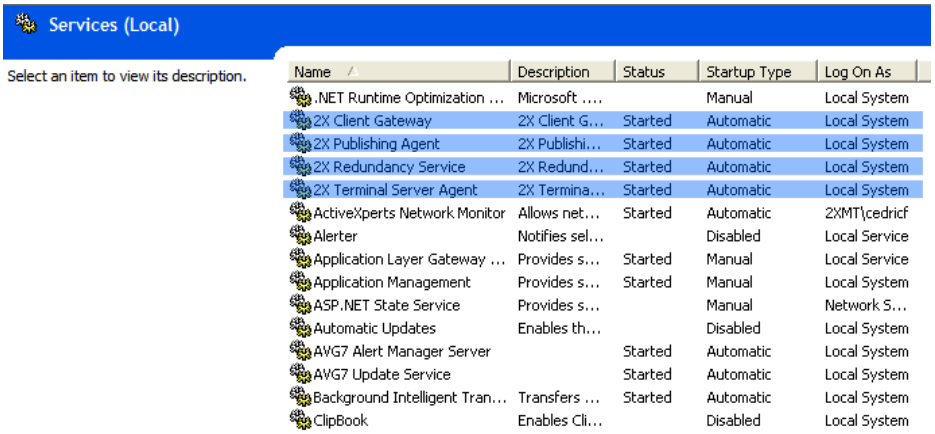

Figure 33 - 2X Client Gateway, 2X Publishing Agent, 2X Redundancy Service and 2X Terminal Server Agent

2X Publishing Agent - provides Load Balanced Applications and desktop publishing.

2X Terminal Server Agent - provides information to 2X Applications server and 2X Load Balancer.

2X Redundancy Service - provides redundancy to 2X ApplicationServer and LoadBalancer.

2X Client Gateway - tunnels all traffic needed by 2X applications on a single port and provides secure connections.

NOTE: All users who are connected via the 2X Client Gateway will be disconnected if the 2X Client Gateway service is stopped or restarted. Note that the default port (80) may already be in use (for example, by an HTTP server) – in this case it will be necessary to use a port number not being used by other local services.

MS Terminal Server settings

With Terminal Services Configuration, you can reconfigure the properties of the RDP-TCP connection, which includes limiting the amount of time client sessions can remain active on the server, setting protection levels for encryption, and selecting which permissions you want users and groups to have. Some connection properties can also be configured on a per-user basis using Terminal Services Group Policies or the Terminal Services extension to Local Users and Groups. For example, you can set different session time limits for each user when you use the Terminal Services extension to Local Users and Groups. Using Terminal Services Configuration, you can only set session time limits on a per-connection basis, which means the same time limit applies to all users who log on to the server using the connection.

Launch “Terminal Services Configuration” from the Administrative Tools Submenu (in the Start menu).

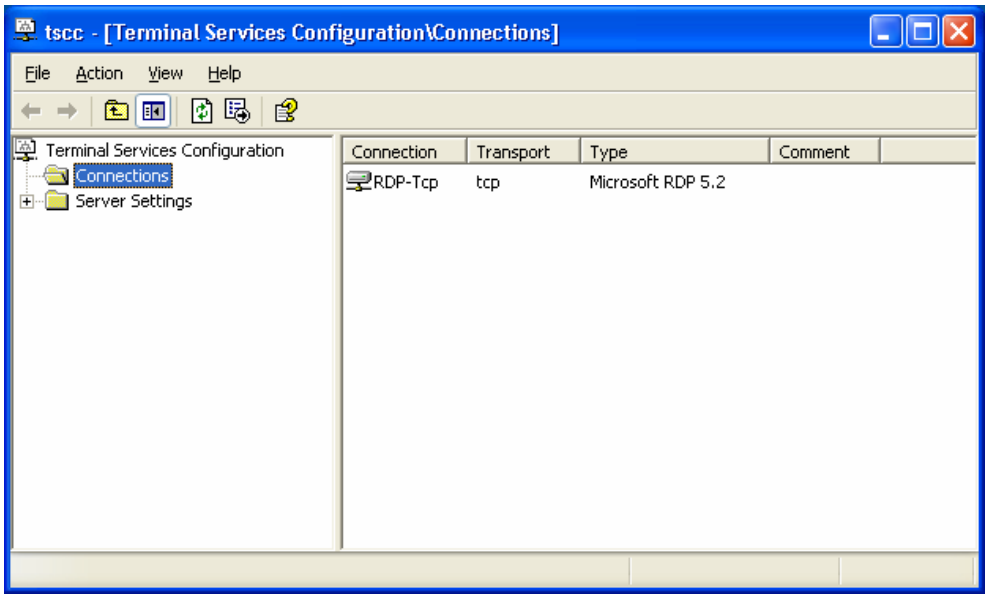

Figure 34 –Configuring Terminal Services Connections

Restrict each user to one session

To conserve server resources and simplify reconnecting to disconnected sessions, you can restrict each user to a single session. To change this attribute select “Server Settings” and double-click the ‘Restrict each user to one session’ option. Ticking the check box in the resulting dialog will enable the restriction, and therefore enable reconnections to previously-disconnected user sessions. This feature is configurable in the “Load Balancing” page in the 2X ApplicationServer & LoadBalancer Console.

Logon Settings

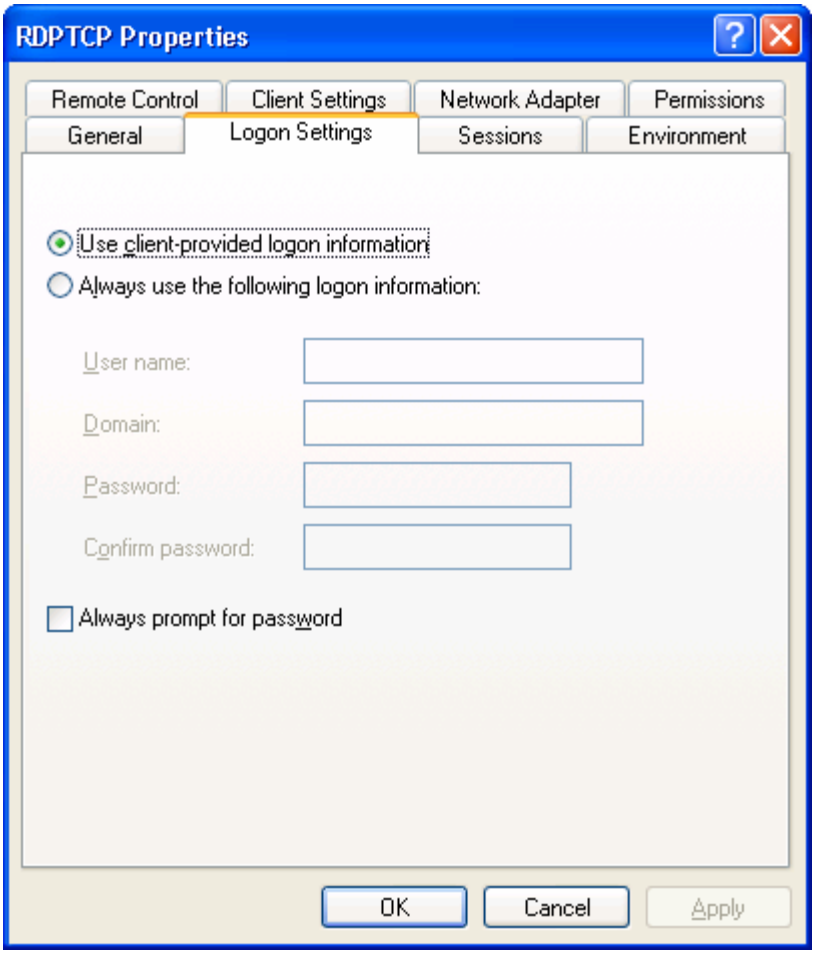

Figure 35 - Logon Settings

Ensure your terminal server is set to NOT prompt for a password on the RDP-TCP listener otherwise clients will not be able to launch the applications using the credentials saved on the 2X ApplicationServer client, forcing unnecessary repeated authentication cycles. Select “Connections” and double-click the “RDP-Tcp” option. In the “Logon Settings” tab make sure that the checkbox “Always prompt for password” is unchecked.

Environment

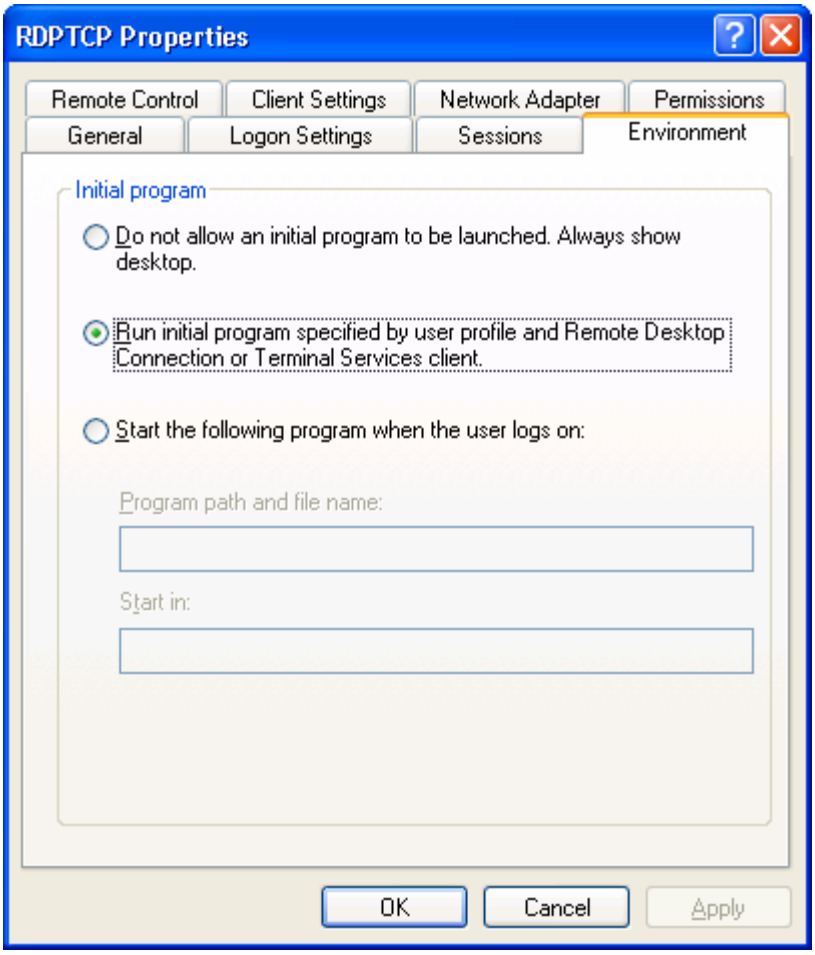

Figure 36 – Environment

To be able to launch the seamless published applications from the 2X ApplicationServer, select “Connections” and double-click the “RDP-Tcp” option. In the “Environment” tab make sure that the option “Run initial program specified by user profile and Remote Desktop Connection or Terminal Services client” is ENABLED.

FARM

In this page you can add Terminal Servers or Citrix Servers to the farm. You have two options to add Servers to the farm. You can either automatically search for available Terminal Servers or Citrix Servers within your domain by clicking the 'Find…' button or you can click on the 'Add…' button to manually add the Terminal Servers or Citrix Servers.

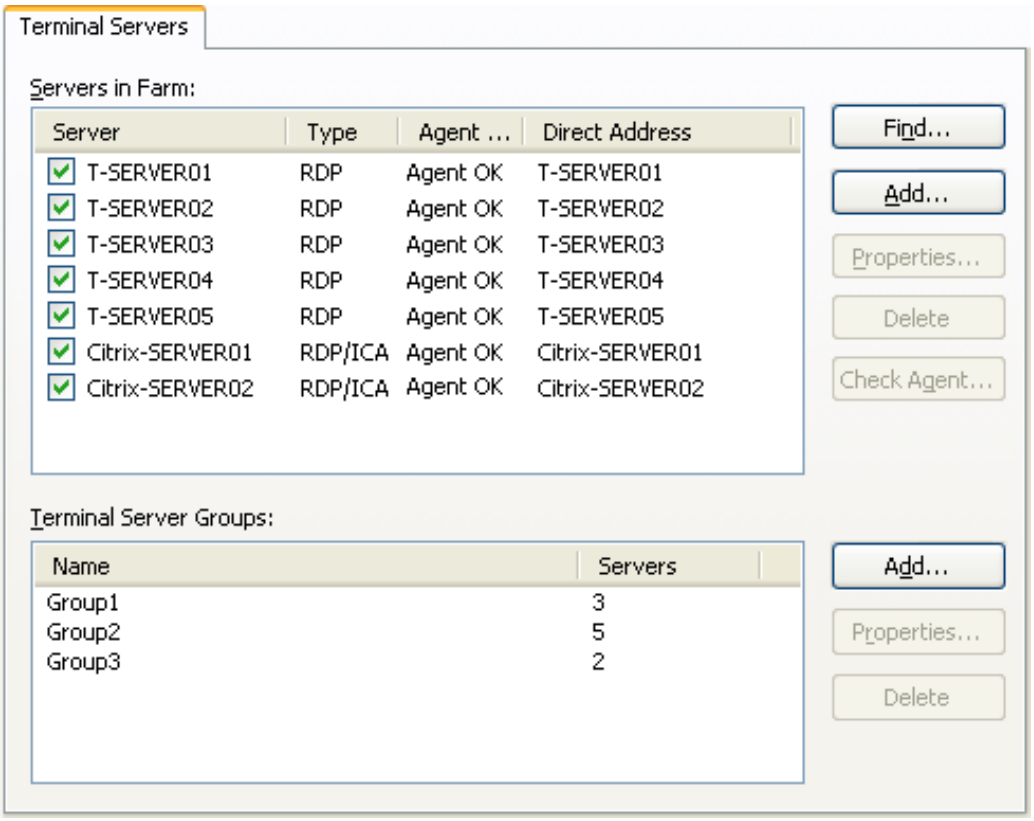

Figure 37 - Add Terminal Servers or Citrix Servers to the farm

NOTE: The checkbox next to the server name indicates the particular server is available to users on this farm. To disable a server temporarily, uncheck this checkbox.

Find

Click the ‘Find…’ button to automatically search for available Terminal Servers and Citrix Servers.

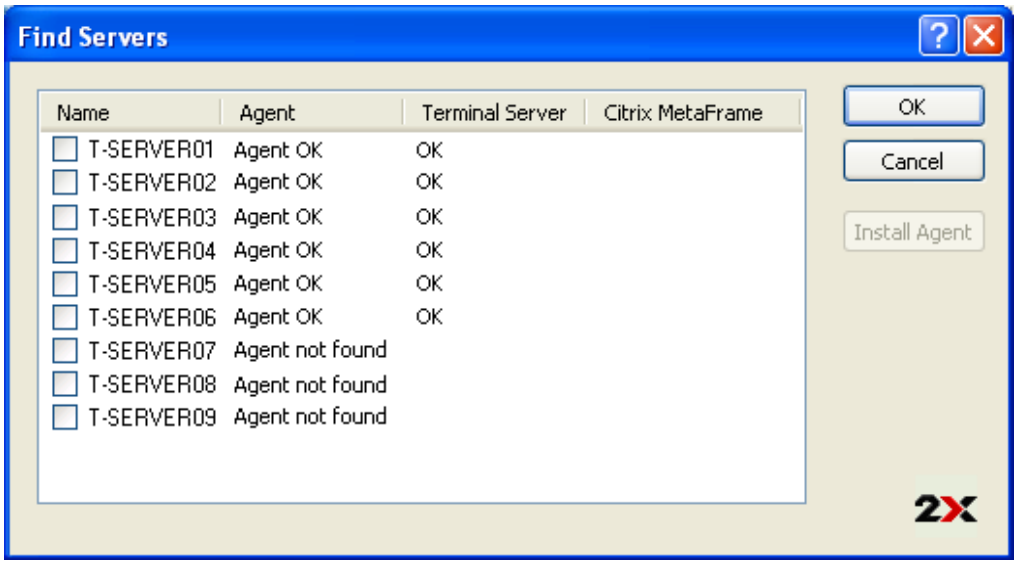

Figure 38 - Find available Terminal Servers

All Terminal Servers and Citrix Servers within your domain will appear on the list of available servers to your farm, also identifying terminal server type (Windows or Citrix) and availability of 2X Terminal Server Agent on the respective server. To add a server to the farm, enable the checkbox in front of the server name. Click the ‘OK’ button to commit changes.

NOTE: It will be necessary to install 2X Terminal Server Agent on all Terminal Servers and Citrix Servers before they can successfully participate in a load-balanced farm.

Add /Edit/Delete

To manually **add** a Server to your farm click the 'Add…' button and then type the Server name or IP address in the 'Server:' field as shown in the figure below. Then click 'Next'.

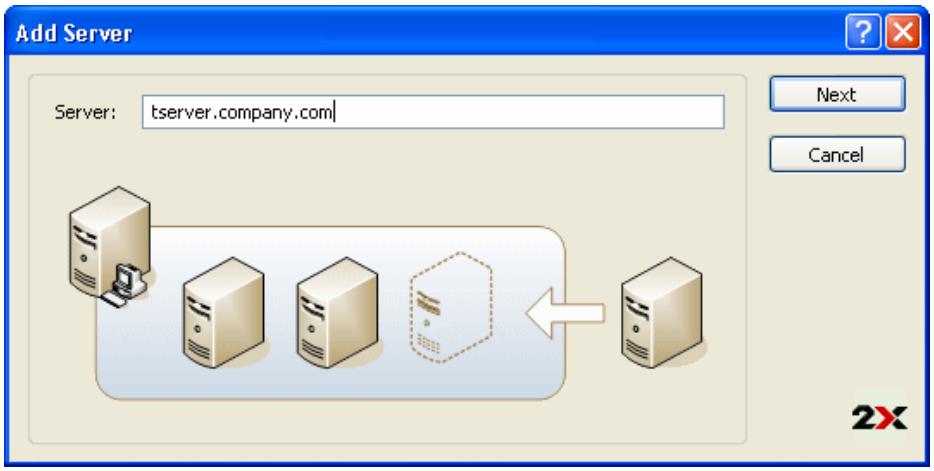

Figure 39 - Configure each server properties

2X ApplicationServer & LoadBalancer will check whether 2X Terminal Server Agent is installed. Check the status and if the status states that the Agent did not reply or service is not installed, click the '**Install…**' button. Please refer to the chapter entitled "Installing the 2X Terminal Server Agent remotely from 2X Console" - for more information about how to install the 2X Terminal Server Agent.

Click 'Add' if the status states that the Agent is already installed.

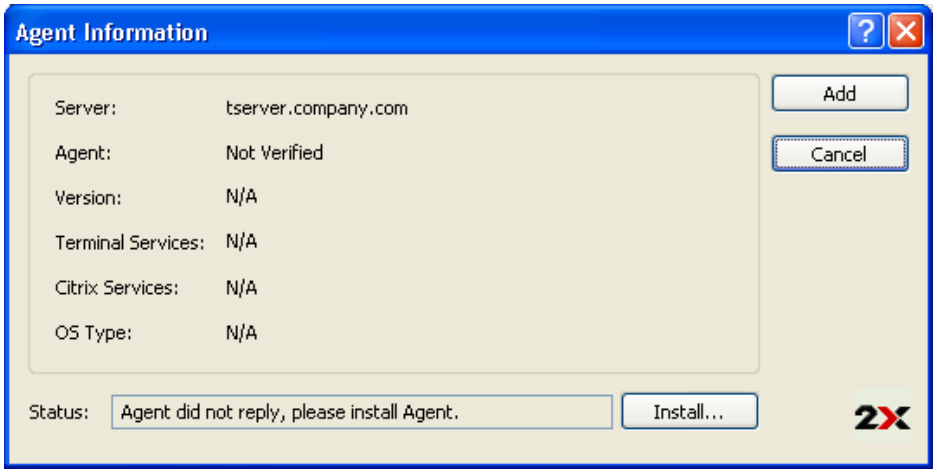

Figure 40 – Add Terminal Server

To **edit** the configuration of each Server, select the particular Server and click the ‘Properties…’ button. You can also double click each Server to edit its configuration.

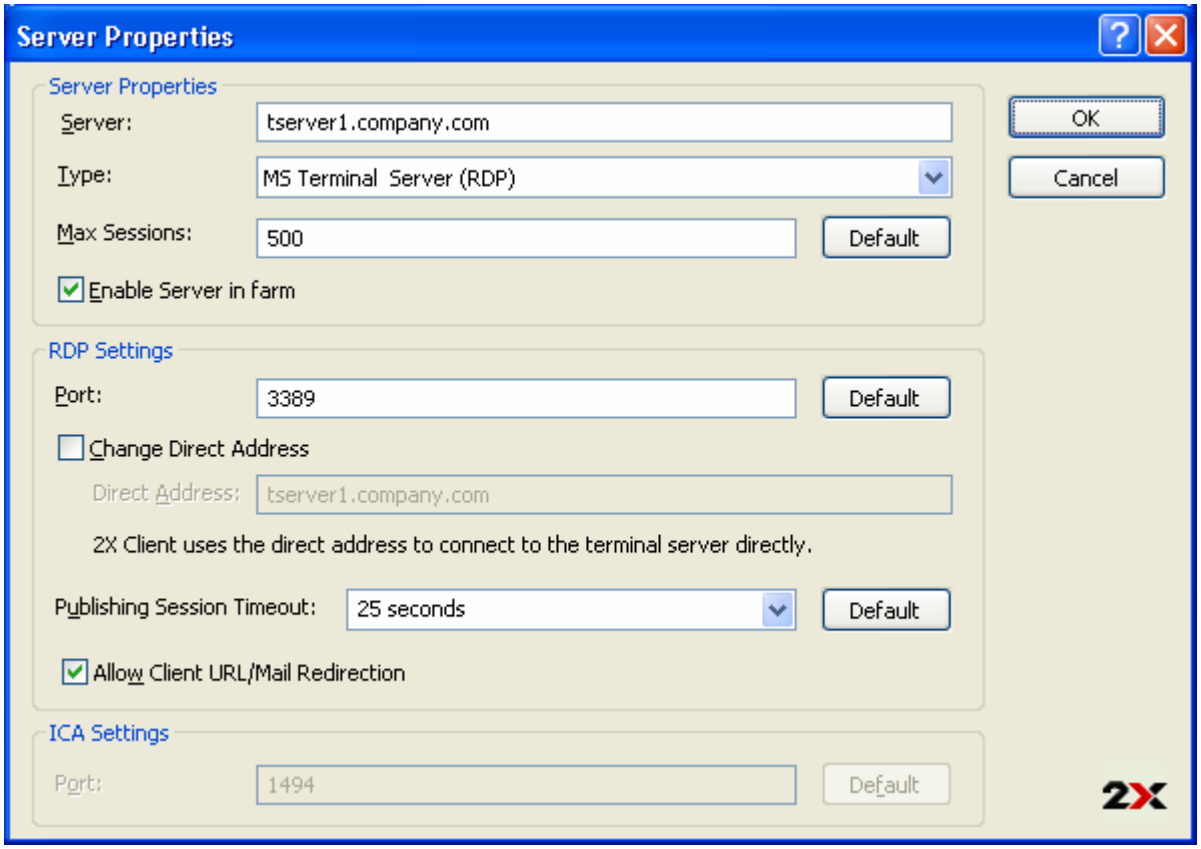

Figure 41 - Configure each server properties

Server Properties

To change the Server name or IP address of a particular Terminal Server use the ‘Server’ field. Each Terminal Server can be configured to accept RDP traffic, ICA traffic or both from the ‘Type’ field.

Next you can type the maximum number of sessions you want this server to accept. To enable this server in the farm, make sure that ‘Enable Server in farm’ checkbox is checked.

RDP Settings

Default RDP port is 3389, however this port can be changed according to the actual RDP port of the configured Terminal Server. This port will be used by the 2X Client Gateway when a connection is created in a gateway mode. This port may also be used from the clients directly if the connection is created in a direct mode.

In the RDP settings one can configure the direct address by checking ‘Change Direct Address’ checkbox and type a new direct address. This address is used in Direct Connection mode only (this is an internal or external IP address) depending where the clients will be. If external, these IP address must be assigned at your firewall to your servers).

The publishing session timeout is the amount of time that each session will stay disconnected after the user close the published application.

One can also choose to allow URL/Mail redirection on the client. This option provides that ability that http and mailto links will be opened using local applications instead of using the resources on the Terminal Server.

ICA Settings

In the ICA Settings, one can change the ICA port which by default would be listening on port 1494.

When finished click ‘**OK**’.

To **delete** a Server from the farm, select the particular Server and click the ‘Delete’ button. You can also use the Delete key from the keyboard instead of using the ‘Delete’ button.

Check Agent

Once you have finished adding your Terminal Servers or Citrix Servers select a terminal server (one at a time) and click the '**Check Agent**' button. If the 2X Publishing Agent can communicate with the 2X Terminal Server Agent running on the Terminal Server, you will receive this message:

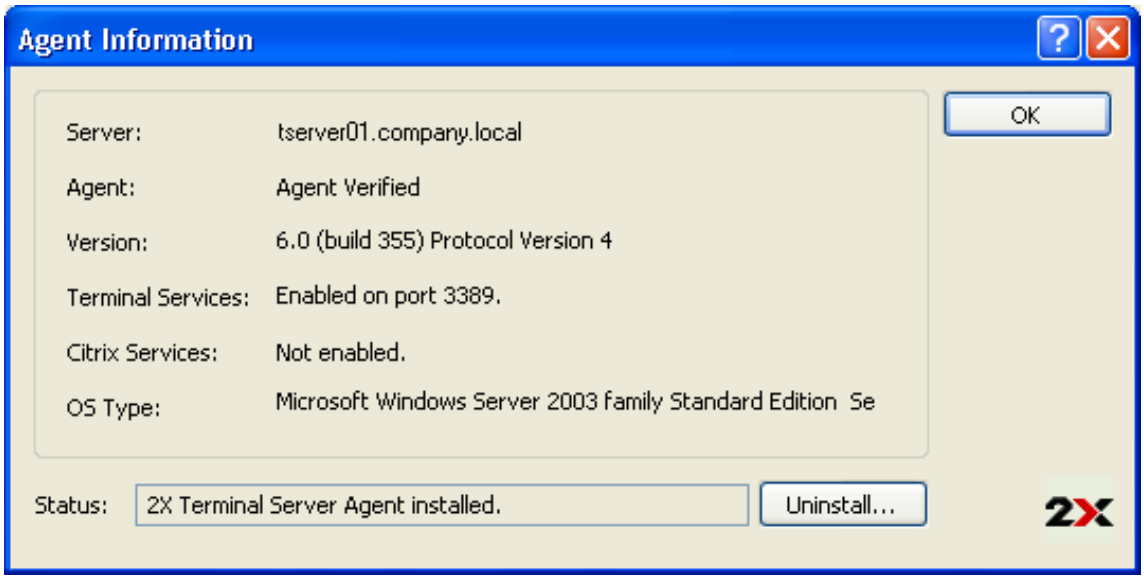

Figure 42 – 2X Terminal Server Agent verified by 'Check Agent'

NOTE: Make sure that 2X Terminal Server Agent is installed on each Terminal Server added to the farm. 2X Terminal Server Agent collects the information required by 2X Publishing Agent to be able to load balance each session according to available resources.

Server Groups

To organize your Terminal Servers in groups, click the ‘Add…’ button in the Server Groups Panel. Type the name that you want to give to the new group and select the Terminal Servers which are going to be bind within that group.

Server Groups are useful when you want to publish an application or a desktop which is located on a number of MS Terminal Servers but not in the whole farm. Therefore you can group the MS Terminal Servers which hosts that particular application and then select that group in the ‘Publish From’ tab when publishing applications. One can also use groups to configure specific filters so that connections to non published desktops can be redirected to specific groups (please refer to Advanced Load balancing section for more information).

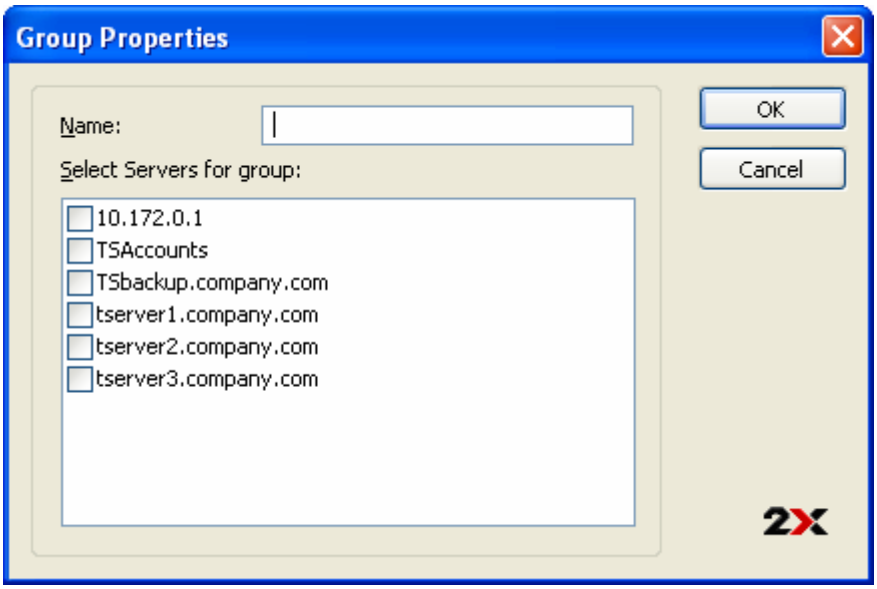

Figure 43 - Group Properties

LOAD BALANCING

To configure 2X LoadBalancer click on '**Load Balancing**' in the navigation bar in the 2X ApplicationServer & LoadBalancer Console.

Load Balancing

In this page you can choose the load balancing method to be used. The 2X LoadBalancer has two possible methods to load balance incoming connections.

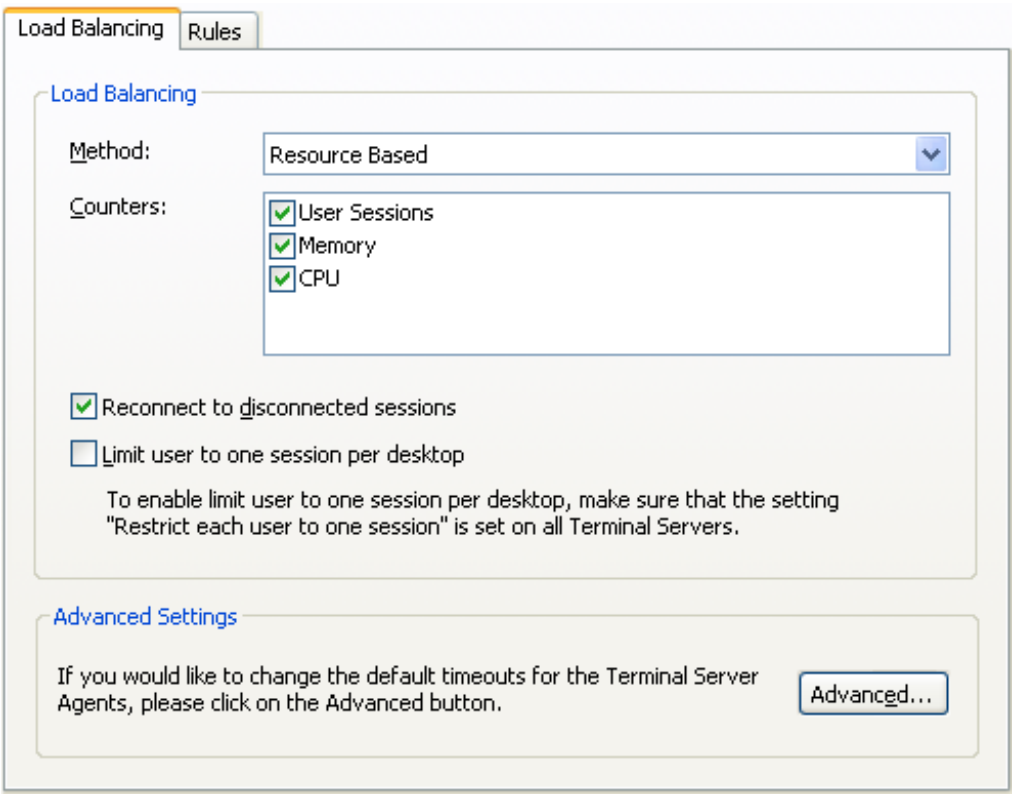
Load Balancing
Rules
Load Balancing
Method:
Resource Based
Counters:
User Sessions
Memory
CPU
Reconnect to disconnected sessions
Limit user to one session per desktop
To enable limit user to one session per desktop, make sure that the setting "Restrict each user to one session" is set on all Terminal Servers.
Advanced Settings
If you would like to change the default timeouts for the Terminal Server Agents, please click on the Advanced button.
Advanced...

Figure 44 - Configure load balancing properties

Round Robin Load Balancing: in this method, 2X LoadBalancer will identify the next available Terminal Server and forward the incoming connection accordingly, regardless of available resources on the server.

Resource Based Load Balancing: in this method, 2X LoadBalancer will retrieve the load information for all Terminal Servers in the farm and, based on the counters chosen, will determine the terminal server that will handle the incoming connection. Three different counters are available:

> **Sessions:** the connection is redirected to the server with the least number of sessions in use.
>
> **Memory Utilization:** the connection is redirected to the server with the best free/used RAM ratio.
>
> **CPU Utilization:** the connection is redirected to the server with the best free/used CPU time ratio.

If more that one counter is selected for load balancing, 2X LoadBalancer will add the counter ratios together, and redirect the session to the server with the most favorable combined ratio.

The recommended setting is to enable all three counters, unless there is a particular need for one of the other counters available.

NOTE: It will be necessary to install 2X Terminal Server Agent on all Terminal Servers and Citrix Servers before they can successfully participate in a load-balanced farm.

Enable the "Reconnect to disconnected sessions" option to allow 2X Publishing Agent to redirect an incoming user session to a previously disconnected session owned by the same user.

You may also choose to reconnect active sessions by selecting 'Limit User to one session per desktop'. Therefore if a user connects to a Terminal Server and re-connects again while there is an active session started by the same user, he will be connected to his same active session.

NOTE: To enable limit user to one session per desktop, make sure that the setting 'Restrict each user to one session' is set on all Terminal Servers from the Terminal Services configurations\Connections.

Advanced Settings

From the Advanced Settings one can change the default timeouts for the Terminal Server Agents. Advanced settings should be configured using the default settings in normal scenarios.

Declare TS Agent dead.

This option is the amount of time that the 2X Publishing Agent should wait without a reply from each 2X Terminal Server Agent before declaring that particular Agent as dead.

TS Agent Refresh Time

This option is the amount of time that the 2X Publishing Agent should re-check the connection with each 2X Terminal Server Agent.

Enable CPU Load Balancer

The CPU Load Balancer has an important role in the 2X Terminal Server Agent as when enabled it can control those processes that are using the most CPU. This can be done as the 2X Terminal Server Agent (2XAgent.exe) is given a High base priority and when the Terminal Server CPU exceeds 95%, the process that is using most CPU is given a low priority. With this option enabled, when the CPU is over 95%, other sessions and other applications will continue to operate normally.

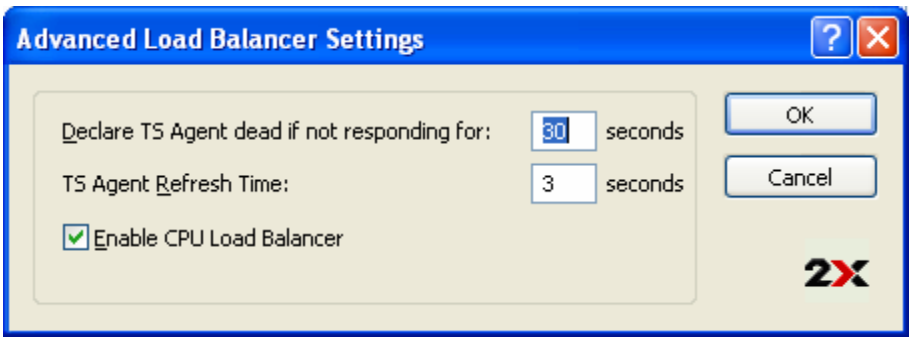

Figure 45 - Advanced Load Balancer Settings

Rules

In this page one can set specific filters so that native RDP & ICA connections can be redirected to specific terminal server(s). Load balancing rules are useful to assign a group of terminal servers or a specific terminal server with a specific 2X Client Gateway IP. Therefore connections initiated from that particular IP will be load balanced to correspondent group or particular terminal server.

NOTE: Load Balancing Rules are applicable only to non published desktop sessions.

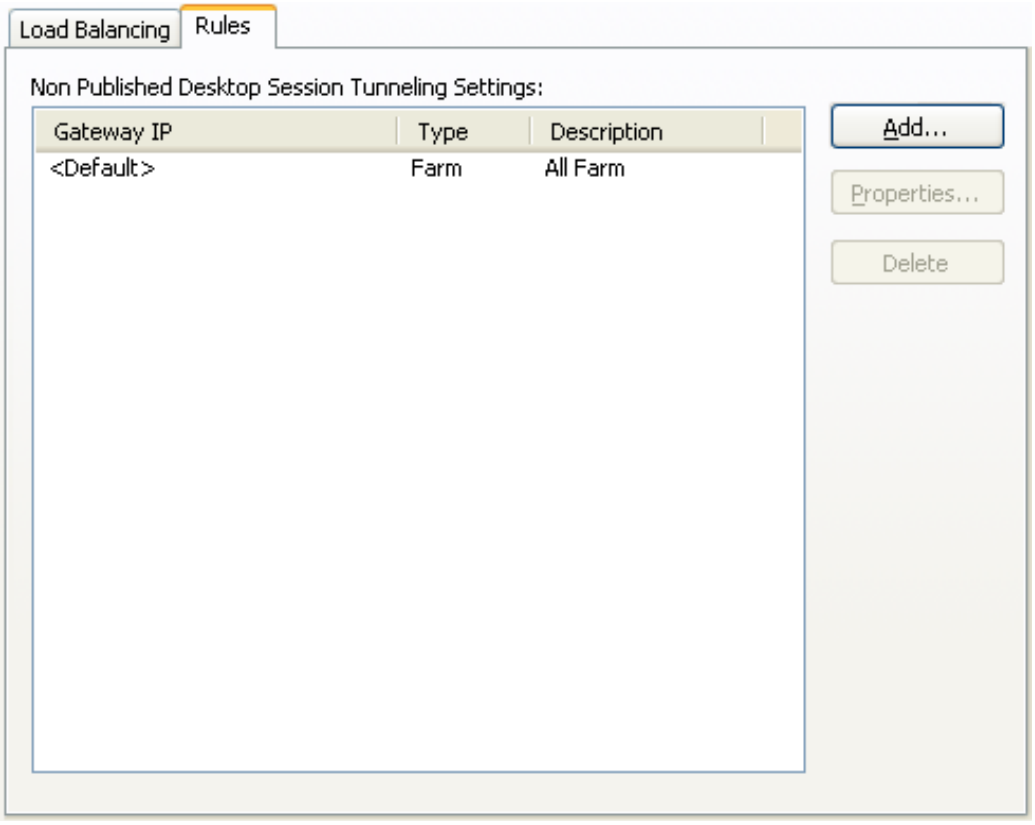

Figure 46 - Advanced Load Balancing

Default Rule

The <**Default**> rule is pre-configured as the last rule which will catch all non configured gateway IPs. By default this rule is configured to load balance the sessions between all servers in farm. However one can change the properties of this rule by selecting the default rule and click '**Properties…**'.

Add a new rule

To add a native RDP & ICA Load Balancing Rule, click the '**Add…**' button. This will open a new dialog as shown below. First select the interface for which you would like to create the rule. Secondly you have to select between 'All Servers in Farm', 'Server Groups', 'Individual Server' or 'None.

Rules Properties

All Servers in Farm

All connections initiated through this interface will be load balanced between all servers in the farm. One should note that default rule is already pre-configures to load balance native RDP & ICA sessions between all servers in farm.

Server Groups

All connections initiated through this interface will be load balanced with the selected group. One can select one or more groups to be associated with this interface as shown in the figure below. These Terminal Server Groups can be configured in the Terminal Server page.

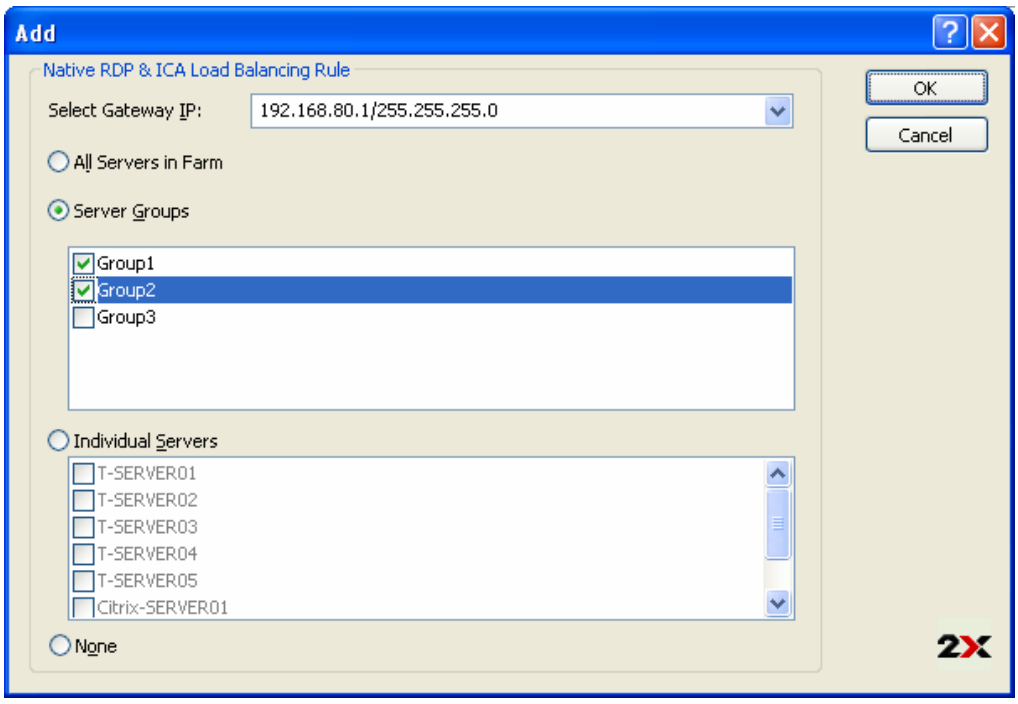

Figure 47 - Native RDP&ICA Load Balancing Rule – Load Balance between Server Groups.

Individual Server

All connections initiated through this interface will be load balanced with the selected individual servers. Therefore one can select particular individual servers and connections initiated from the selected interface will be load balanced with the selected Terminal Server.

With this option one can also configure an IP to be associated with only one single server.

None

All connections initiated through this IP will be denied. This option is ideal in order to deny connections initiated from the configured gateway IP. For security reasons it useful to allow connections from a certain interface.

With this option one can configure connections initiated from the specified gateway IP to not be forwarded (load balanced) to any terminal server.

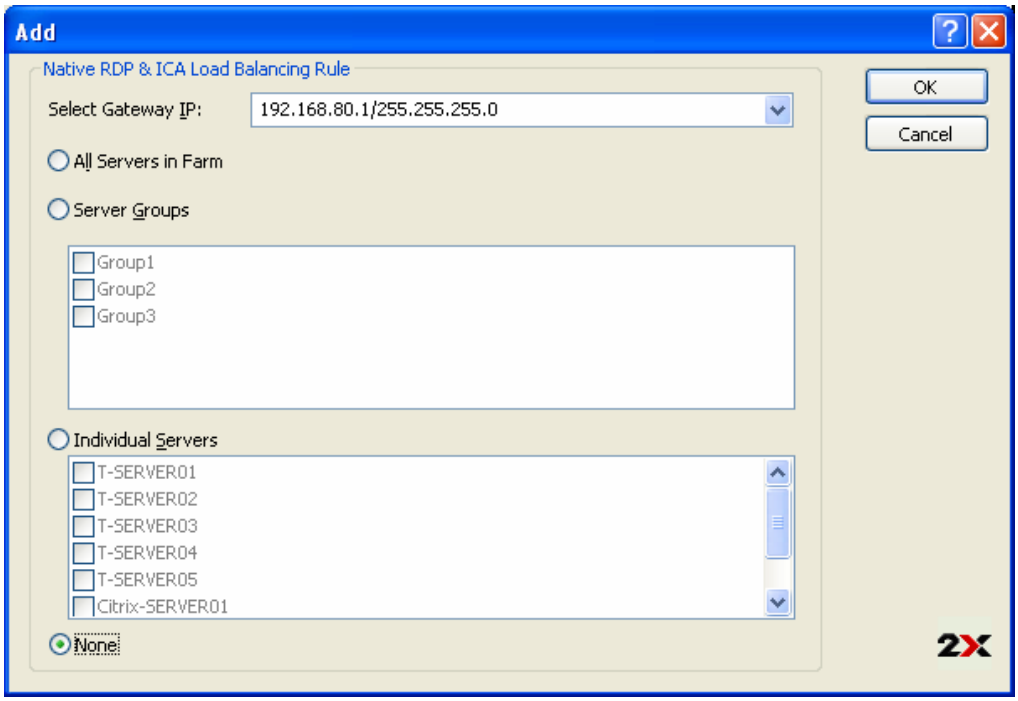

Figure 48 - Native RDP&ICA Load Balancing Rule - Disable a client Gateway IP

After you've configured the rule with the particular gateway IP (interface), click '**OK**' to save the rule.

To re-configure a rule, select the particular rule and click '**Properties**'.

To delete a rule, select the particular rule and click '**Delete**'.

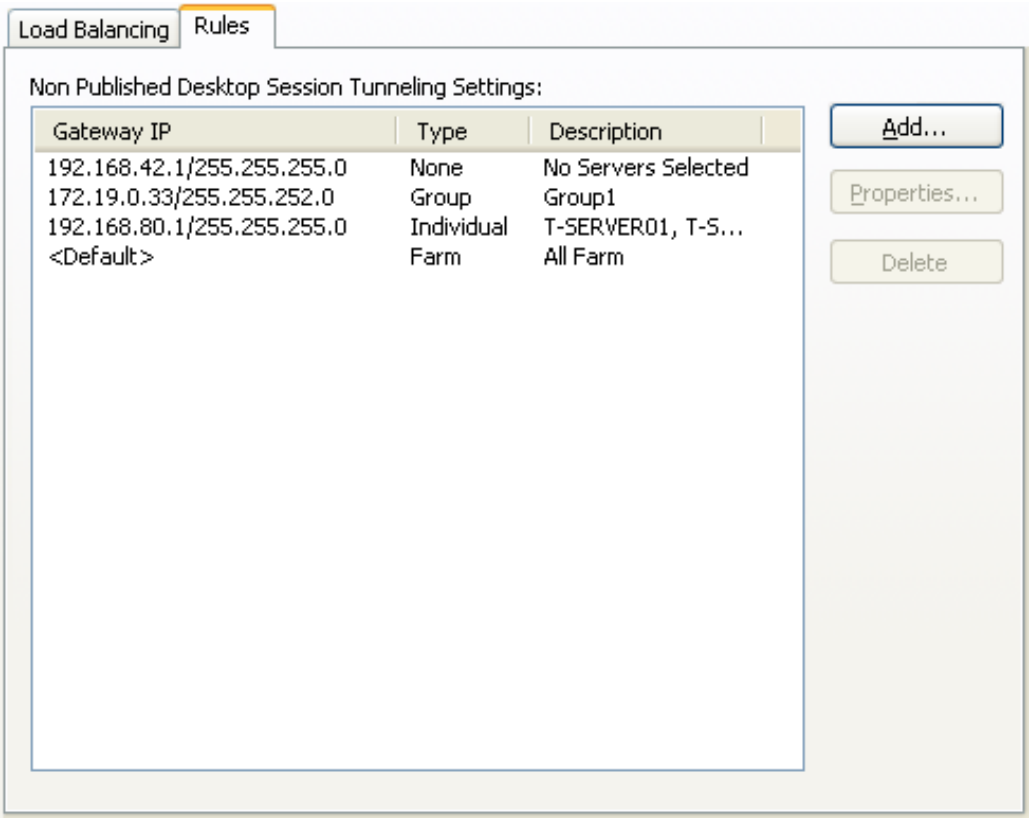

Figure 49 - Load Balancing Rules

NOTE: One can create only one rule for each gateway IP.

PUBLISHING

2X Publishing Wizard

To start publishing the applications, select ‘Publishing’ from the Navigation bar and click the ‘**Add…**’ button from the Publishing tools.

Figure 50 - Publishing Tools

A new dialog ‘Select Type’ as shown in the figure below will ask you what you want to publish.

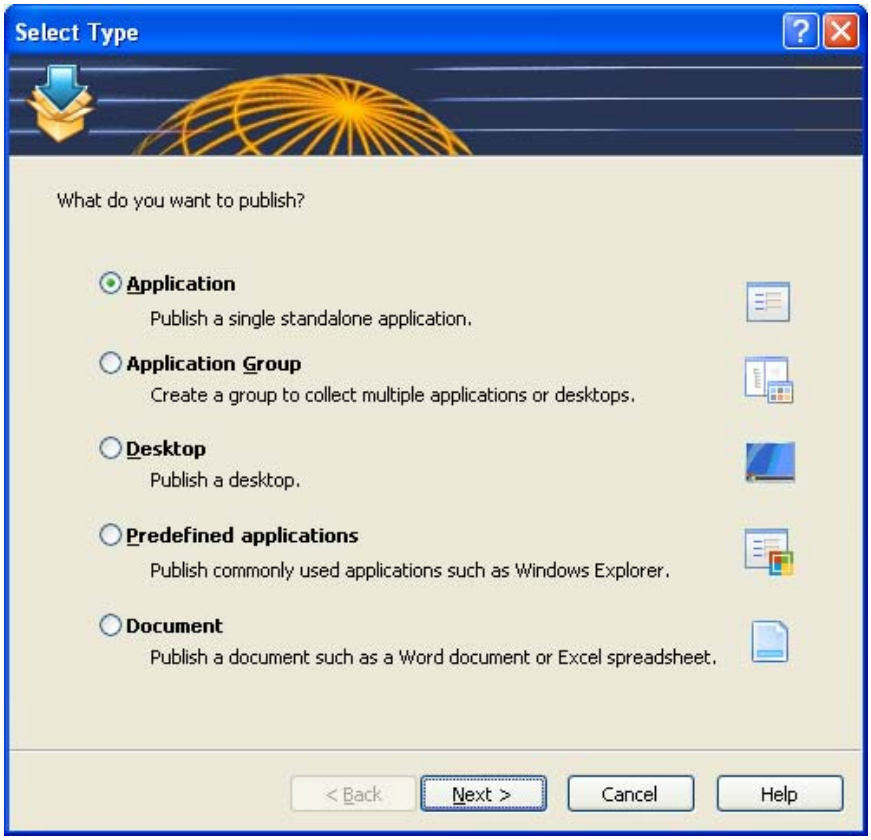

Figure 51 - 2X ApplicationServer Publishing Wizard

Application

One of the most useful features available on the 2X ApplicationServer program is the ability to publish individual (seamless) applications to your users. This means users will see only the applications you give them access to and not full terminal services desktop (when using terminal services only).

To publish a single application, follow these steps:

1. Choose Application and click '**Next >**'

NOTE: If only one server is listed in the Terminal Server list, the wizard will skip step 2 (Publish From) and continue with the Application Settings (step 3).

2. In the 'Publish From' dialog as seen in the below figure you can choose from which Terminal Server/s you want to publish the application. You can choose to publish the application from 'All Server in Farm' *, from Server Groups or from Individual Terminal Servers. If you choose to publish the application from 'All Server in Farm' or from 'Server Groups' make sure that the application is available in all selected Terminal Servers.

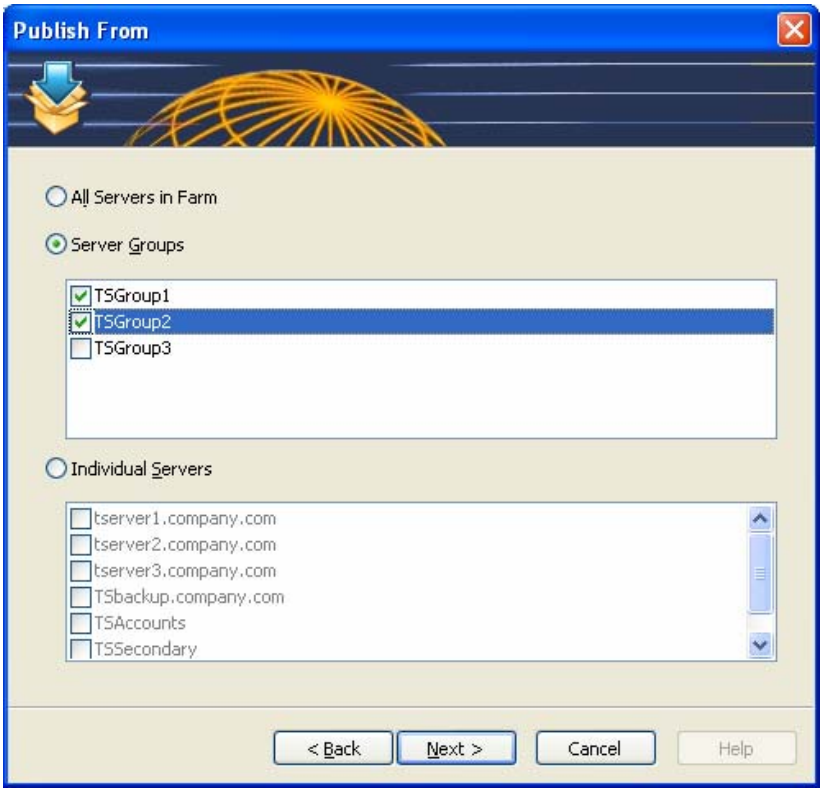

Figure 52 - Choose from which Terminal Server/s you want to publish the application

* 'All Servers in Farm' is the terminology used to indicate the whole list of Terminal Servers which can be configured from the Terminal Server tab in the Terminal Servers page.

3. In the Application Settings you have the ability to configure the 'Name', 'Description', 'Run' and 'Icon'. While 'Target', 'Start in' and 'Parameters' are configurable for each server.

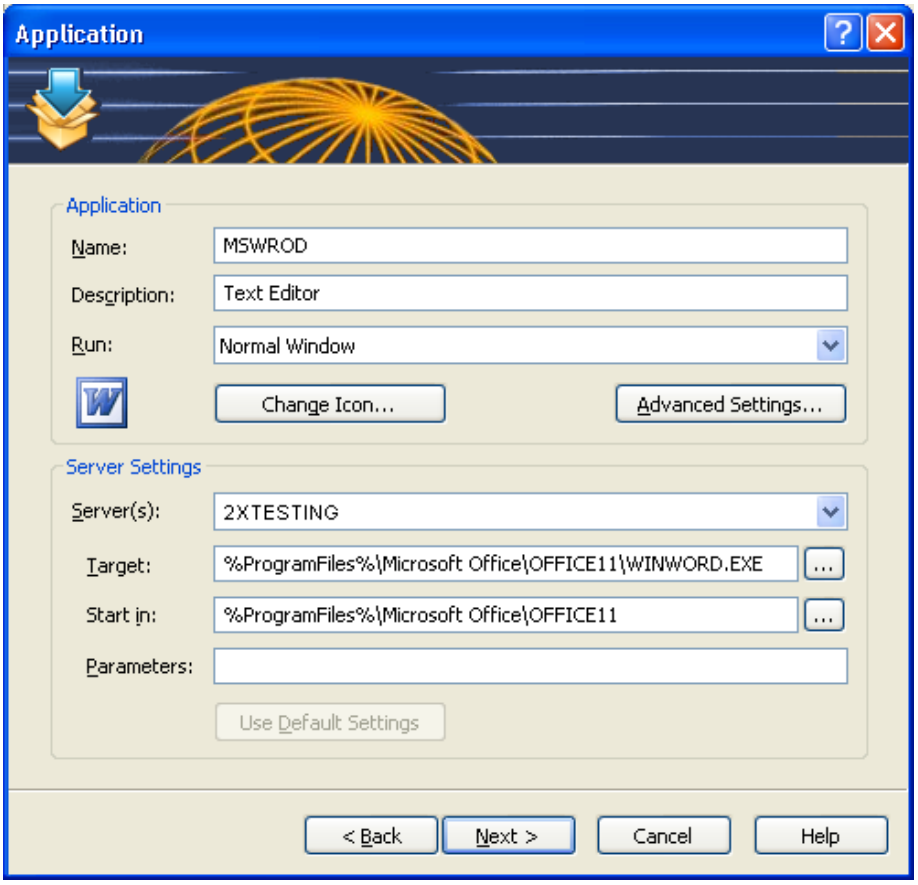

Figure 53 - Application Settings

Application Settings

First you may type the Name and Description related with application that you are going to publish, but Name and Description can be left blank and filled automatically when you choose the application from the target.

You also have the ability to specify the run mode when the published application is launched. The options are to launch the application in a normal window, in a full screen mode or minimized.

From this dialog you may also change the icon for the published application. Click '**Change Icon…**' and select a new icon from the executable file itself or from other locations by clicking '**Browse...**' in the Change Icon dialog box.

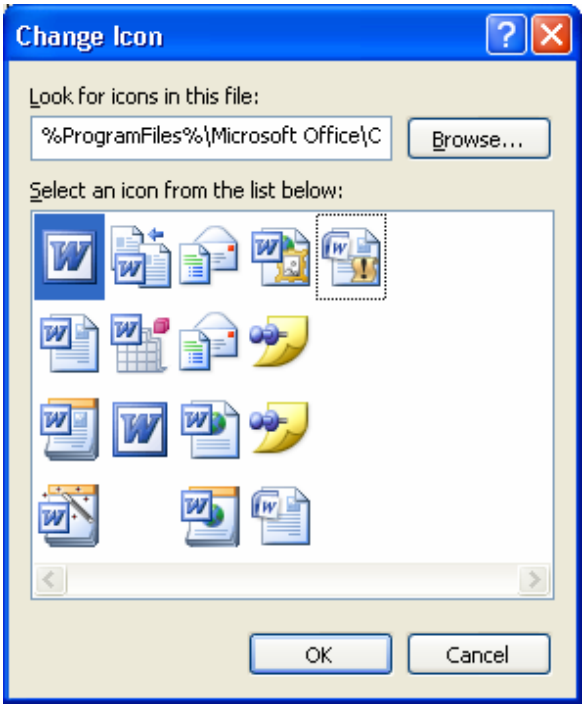

Figure 54 - Application Settings – Change Icon

One can also click '**Advanced Settings…**' to create shortcuts on clients desktop or start folder and associate file extensions with the particular published application.

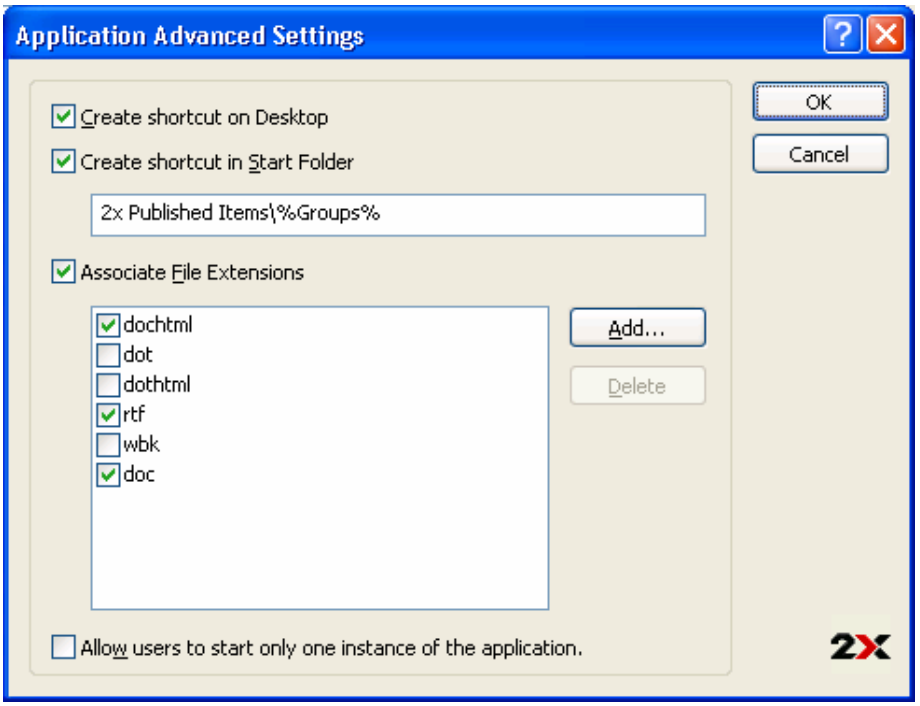

Figure 55 - Application Advanced Settings

To create shortcuts of this particular application on the desktop on the client side, enable '**Create shortcut on Desktop**' checkbox.

To create shortcuts of this particular application in the Start Menu Folder on the client side, enable '**Create shortcut in Start Folder**' checkbox.

One can specify to create the shortcut under certain folders by using '\' and the name of the folder.

E.g. To create the shortcut of 'MSWORD' in folder '2X Published Items\Office Apps' one should specify '**2X Published Items\Office Apps**'.

One can also use the keyword **%Groups%** to place the shortcut according to the published groups.

Associate file Extensions

In the Application Advanced Settings one can also associate file extensions on the client side with the particular published application. One can select one or more extensions to be associated with this published application.

Add other File extensions

To add other non default file extensions, click the '**Add…**' button and enter the file extensions separated by a semicolon as shown in the figure below.

E.g. doc2; txt; wdoc

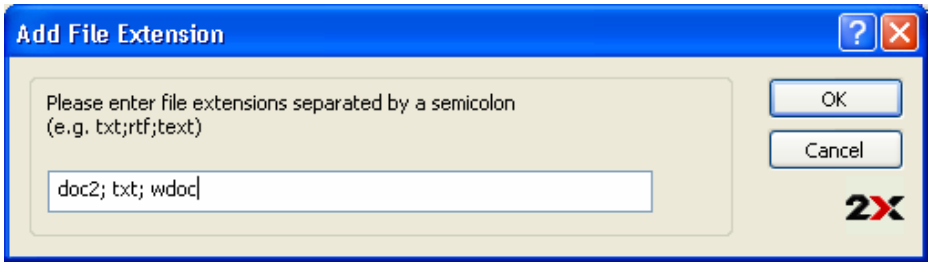

Figure 56 - Advanced Settings – Add File Extensions

Single Instance only

To publish an application and enforce a single instance of that particular application please enable "Allow users to start only one instance of the application".

Server Settings

'Target' is the location of the executable or content file which resides on the Terminal Server. The target can include many types of items, such as a file, executable, word document, image, batch file, and other types of content.

'Start in' specifies the folder that contains the original item or some related files. Sometimes, programs need to use files from other locations. You might need to specify the folder where these fields are located so that the published application can find them.

'Parameters' specifies the parameters that you may pass to your published application.

In the Server Settings you have the ability to configure the above mentioned settings for each Terminal Server. It is common that an application could be installed in different locations on each Terminal Server. To configure each Terminal Server use the drop down list in the 'Server(s)' field.

When the selected server is not the local machine, you can browse for applications or content on the remote Terminal Server. This feature requires that the Terminal Server Agent is installed on the selected server**. Please note that this feature requires that TCP port 30004 is not blocked by any Firewall.**

4. In case you want to publish the application to certain users/groups, clients or IP addresses/ranges you must configure the Filtering tab and select the filtering type that you want by using the 'Select Filtering Type' drop down list as shown in the figure below.

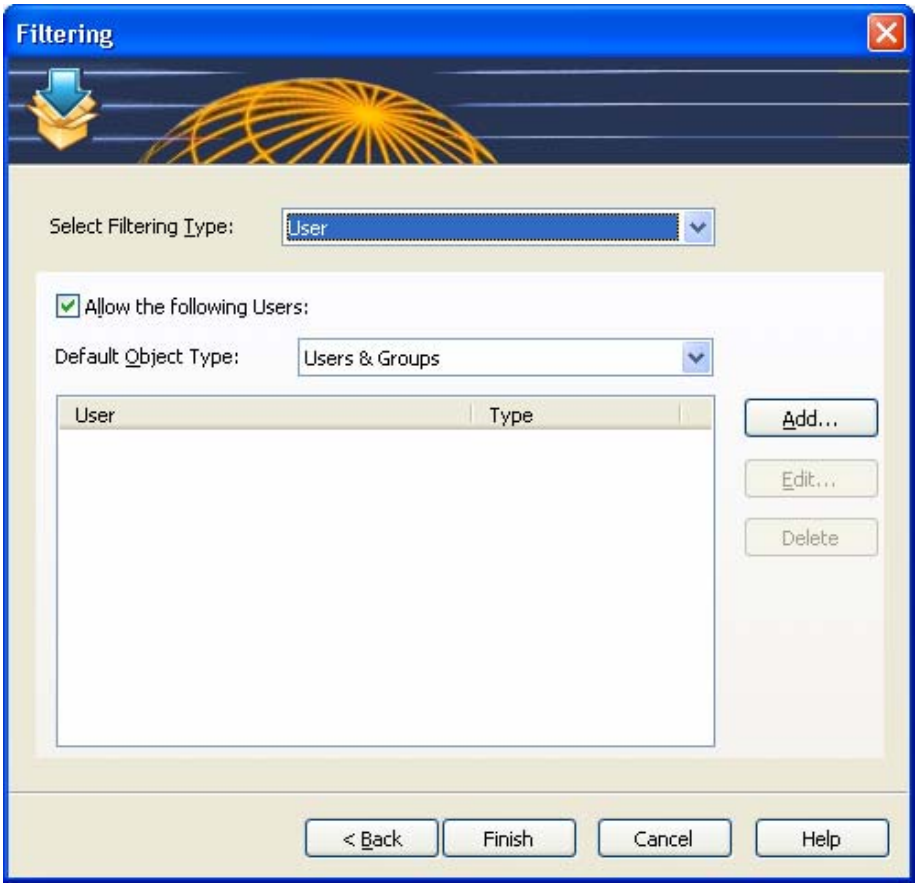

Figure 57 - Select Filtering Type

User

First check the ‘Allow the following Users:’ checkbox and add the usernames/groups in the dialog ‘Select Users or Groups’ as shown in the figure below.

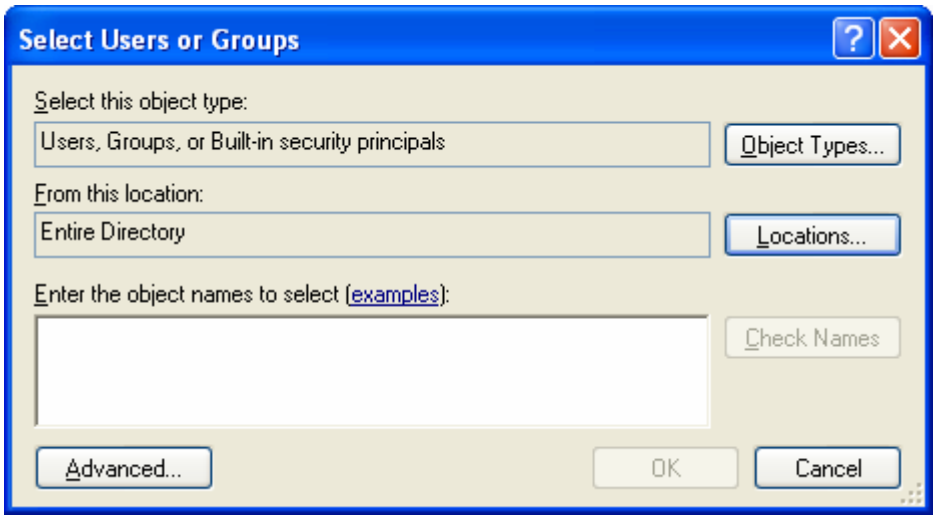

Figure 58 - User or Group Filtering

Client

First check the ‘Allow the following Clients:’ and then select or type the client (computer) name in the dialog ‘Select Client’ as shown in the figure below.

For client names you can use the * character as a wildcard. For example if all your computer names start with CLIENT- simply type CLIENT-*.

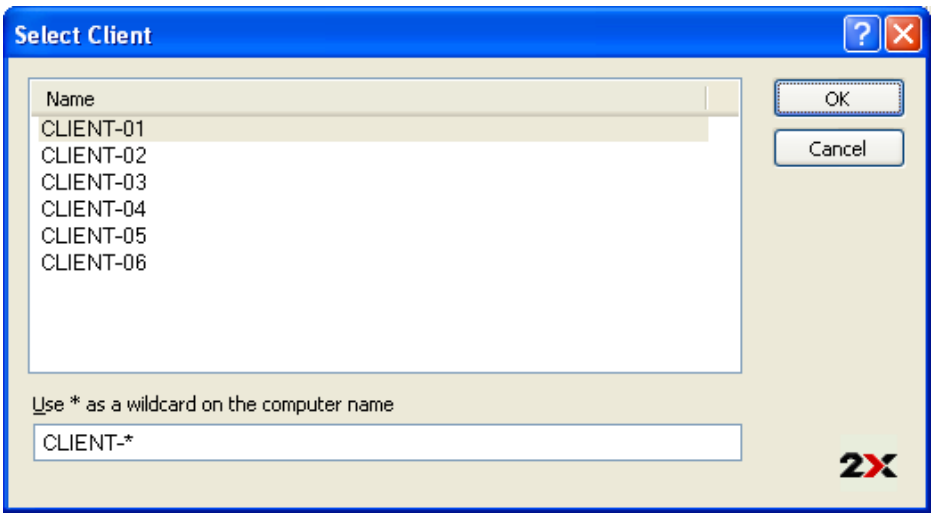

Figure 59 - Client Filtering

- **IP Address**

  First check the 'Allow the following IPs:', then click the 'Add...' button. You can select to filter a single IP or a range of IPs.

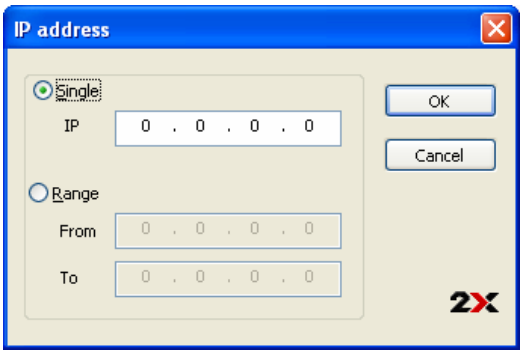

Figure 60 - IP Address Filtering

5. Click '**Finish**' to finalize the wizard, and the application you've just configured will be generated in the 'Published Applications Explorer' area. Now you can re-configure the options by using the tabs in the Published Applications Properties' area.

Add Application Group

To publish an Application Group with the wizard, click on ‘Publishing’ in the Navigation bar and click ‘Add…’. From the ‘Select Type’ dialog choose ‘Application Group’.

Application Groups are useful for organizing your published applications while facilitate the configuration of ‘Filtering’ options as you may configure the filtering options for an application group and the published applications in that group will have the same filtering settings by default.

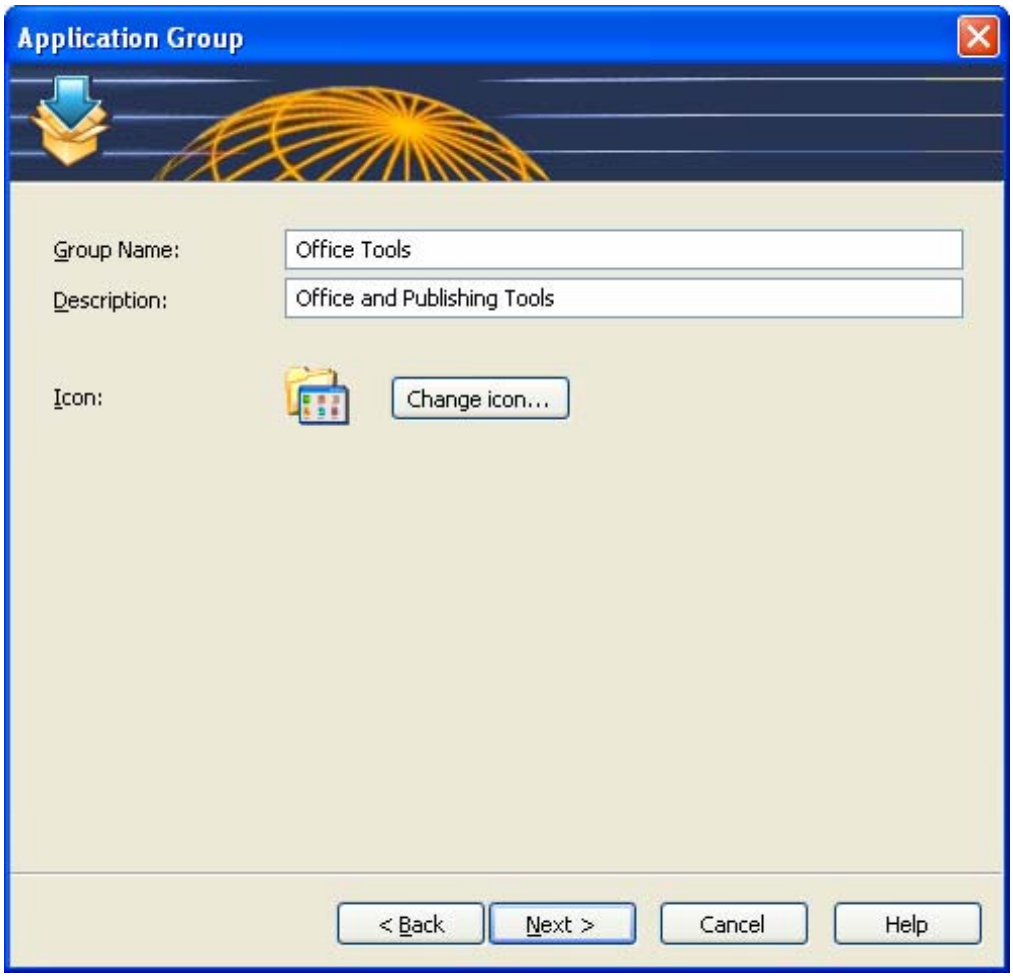

Figure 61 - Add Application Group

One can also enter the description and modify the icon for each application group as shown in the above figure. Application Groups in the 2X Console will be also displayed as application groups on the client side and web.

After you click ‘Next’, one can also choose to create certain filtering rules (User, Client, IP address) for the created application group. Published application listed under this group will inherit the filtering rules of this application group.

Publish Desktop

Full Desktop acts like terminal into an actual server where one can have a remote desktop connection.

To publish an Desktop with the wizard, click on ‘Publishing’ in the Navigation bar and click ‘Add…’. From the ‘Select Type’ dialog choose ‘Desktop’.

Click ‘Next’ and select which Terminal Server to choose from where you want to publish the desktop. You may choose to publish a desktop from ‘All server in Farm’ or from Server Groups. In this case the published desktop will be selected according to the best resources among the selected Terminal Servers. You may also choose to publish an individual desktop by selecting ‘Individual Servers’ and select the preferred server.

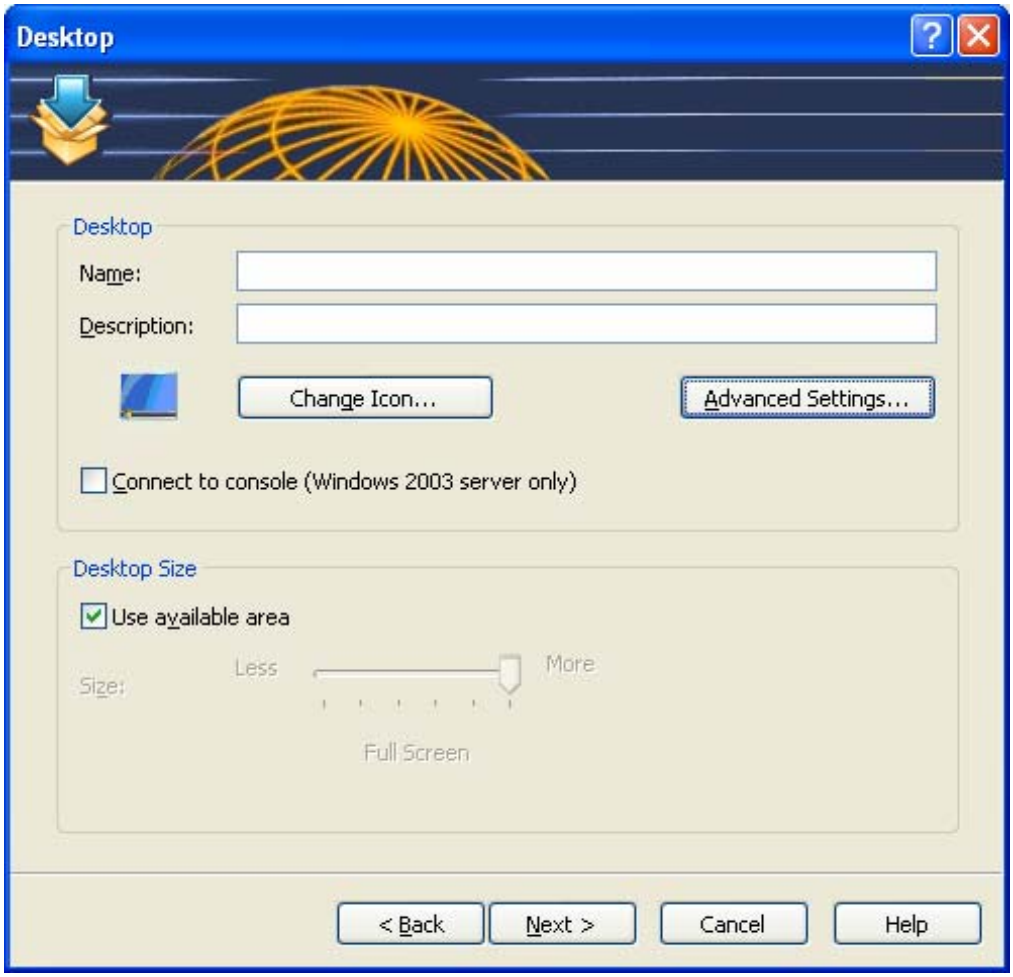

Figure 62 - Publish Desktop

In this dialog you can type the Desktop Name and a Description for the published desktop. From this dialog you may also change the icon for the published desktop.

Windows 2003 Terminal Services gives the ability to connect to the console (session 0) which is the desktop of the actual server, rather than a terminal server session. With this functionality, you can log to a Windows Server 2003-based server that is running Terminal Services remotely and interact with session 0 as if you were sitting at the physical console of the computer.

One may select to enable this option by enabling 'Connect to console'. This options works on MS Windows 2003 Terminal Server only.

One can also click '**Advanced Settings…**' to create shortcuts on client's desktop or start folder of the particular published desktop.

Desktop Size

To configure the desktop size using the available area on the client enable 'Use available area'. To configure a pre defined desktop size disable 'Use available area' and choose the size of the published desktop by dragging the slider 'Size' in the properties section. To obtain a full desktop screen, drag the slider all the way to the right.

Publish Predefined applications

To publish a predefined application with the wizard, click on '2X ApplicationServer' in the Navigation bar and click 'Add…'. From the 'Select Type' dialog choose 'Predefined applications' (Publish commonly used applications such as Windows Explorer).

Predefined Applications include applications which need some special parameters to be published over Terminal Services. Some special folders are a shell extension that usually resides off of the Control Panel. A globally unique ID (GUID) declares these shell extensions and represents the extension and points to the proper DLL to run it. In order to publish these types of applications or folders, one could use the Predefined applications pre-configured in the 2X Console which facilitates these tasks.

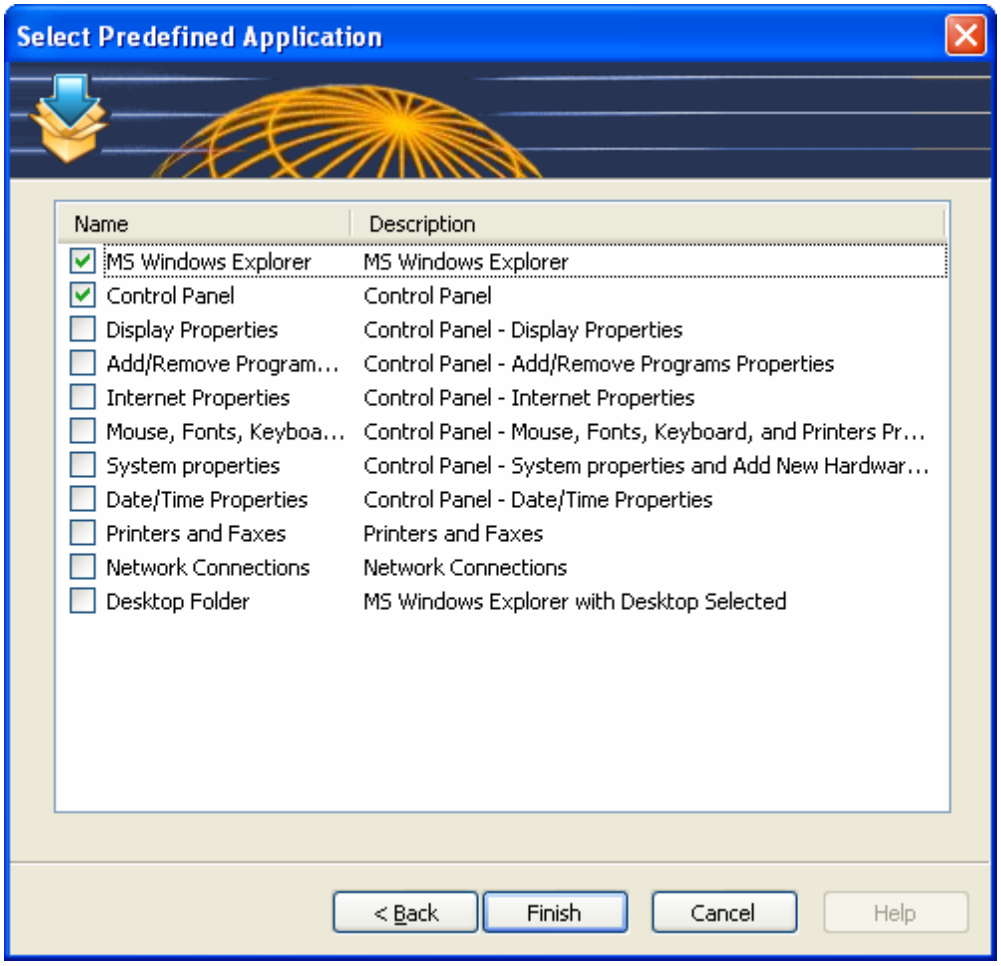

Figure 63 - Publish Predefined Applications

From the predefined applications one can publish with ease the Control Panel, certain Control Panel tools, the Printers and Faxes folder or even publish an explorer window.

Publish Document Content

To publish document content such as Word document and Excel spreadsheet, you can choose to publish the particular content file directly. First select the content type to browse for by selecting the filters you want to browse for. You may also add custom content types if they're not listed in the Filters list by listing the custom file extensions separated by semicolon.

E.g *.text; *.texts; *.pub

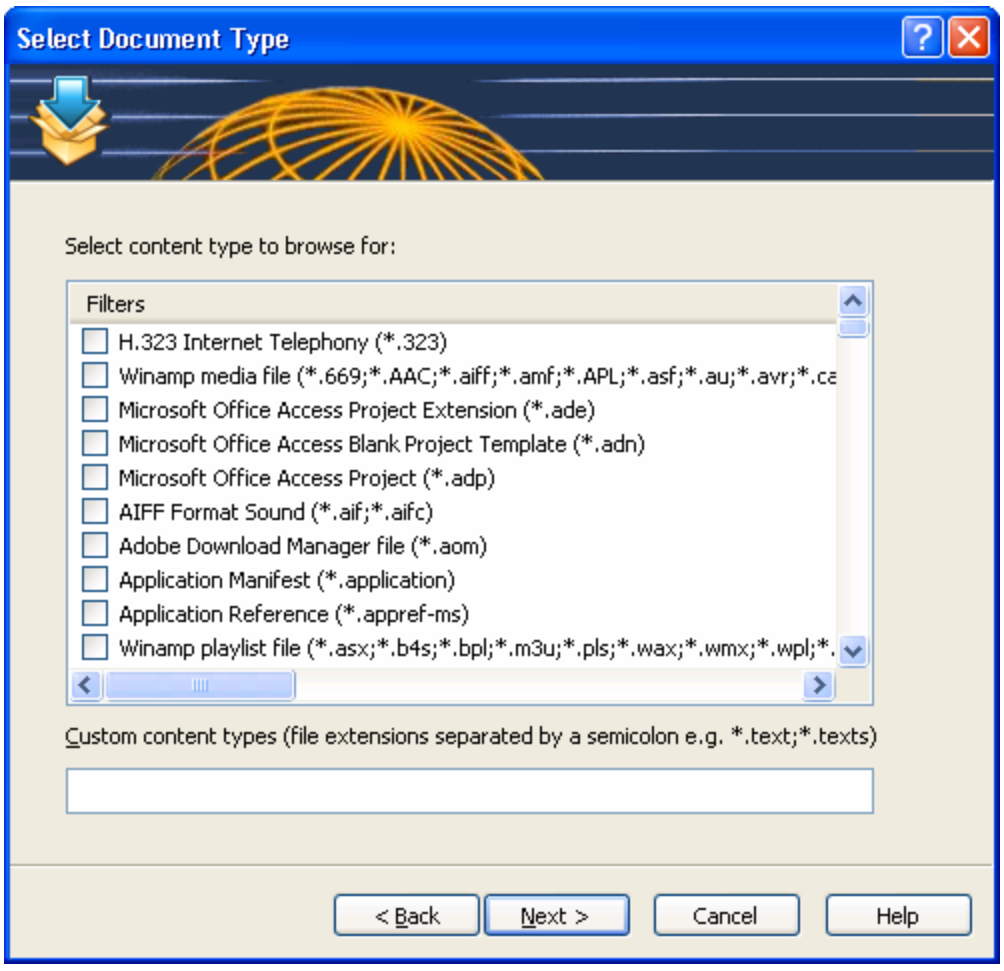
Select Document Type
Select content type to browse for:
Filters
H.323 Internet Telephony (*.323)
Winamp media file (*.669;*.AAC;*.aiff;*.amf;*.APL;*.asf;*.au;*.avr;*.ca
Microsoft Office Access Project Extension (*.ade)
Microsoft Office Access Blank Project Template (*.adn)
Microsoft Office Access Project (*.adp)
AIFF Format Sound (*.aif;*.aifc)
Adobe Download Manager file (*.aom)
Application Manifest (*.application)
Application Reference (*.appref-ms)
Winamp playlist file (*.asx;*.b4s;*.bpl;*.m3u;*.pls;*.wax;*.wmx;*.wpl;*.
Custom content types (file extensions separated by a semicolon e.g. *.text;*.texts)
< Back
Next >
Cancel
Help

Figure 64 - Publish Document Content

Publish Applications using Drag and Drop

An alternative method to publish applications is to drag an application from the Windows Explorer. This method will capture all data related with the application and will be incorporated in the Application and Startup settings. Then you may opt to configure the 'Publish From' and Filtering settings from their respective tabs as by default drag and drop applications will be published to 'All Farm' and Filtering is not enabled. You may also configure the 'Startup Settings' for other servers. For more information how to configure each published application setting refer to the section '2X Publishing Wizard – Application'

To publish an application using the drag and drop feature, first select the group from the Published Applications Explorer in order to select the Application group where you want the application to be published.

Then open the Windows Explorer or just a normal folder and drag and drop any application or content into the 2X Console. You may also drag and drop a whole folder with sub folders, and it will be represented as Application groups and sub-groups in the Published Applications Explorer.

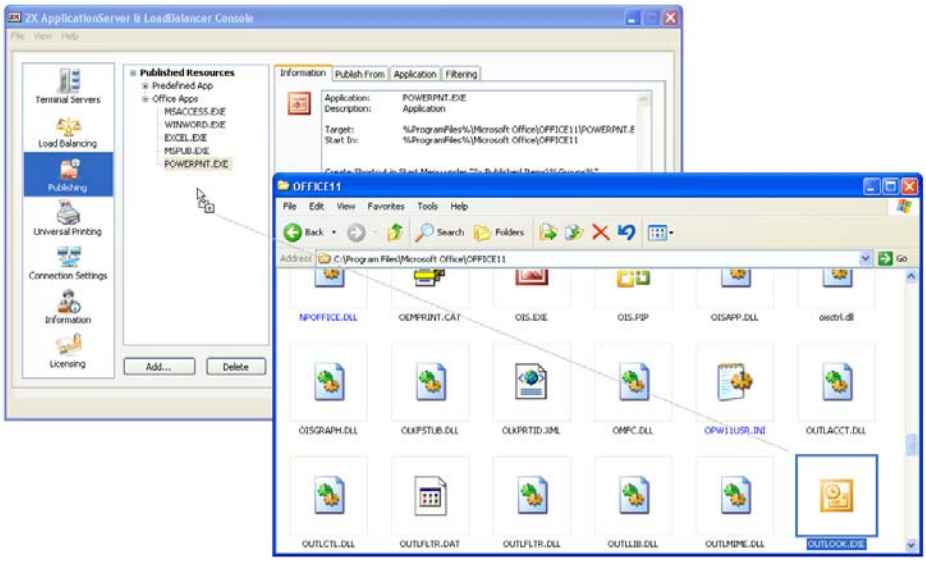

Figure 65 - Publish Applications using Drag and Drop

Publish Applications Configuration

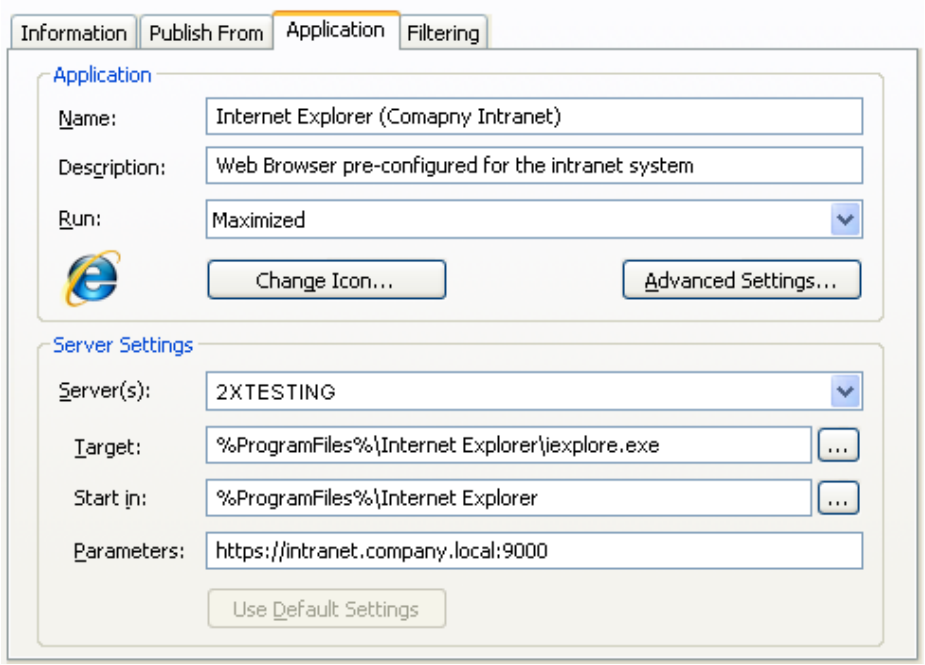

Figure 66 – Applications Configuration – Information, Publish From, Application and Filtering

After you've published an 'Application', 'Application Group', 'Desktop' or 'Predefined applications' using the Wizard or the drag and drop facility, you may choose to re-configure each selected item by using the 'Published Application Properties' Area.

First select the item that you want to re-configure from the 'Published 'Applications Explorer' tree and then choose the appropriate tab according to your needs. The tabs related with the published items are:

- Information – A detailed summary related with the selected application.
- Publish From - To select from where you want to publish the selected item.
- Application – To add or modify the application name and the description related with the selected application and an ability to configure the 'Target', 'Start in' and 'Parameters' for each Terminal Server.
- Filtering – Ability to filter each application or group for certain users or computers according to the username, client name or IP.

For more detailed information about each tab, refer to section '2X Publishing Wizard - Application.

2X UNIVERSAL PRINTING

2X Universal Printing is used to solve printer drivers problems. If the client is using a printer which the server does not have a suitable printer driver, the normal printing redirection will not work. Using 2X Universal Printing you do not need to install the specific printer driver on the server. Only one printer is shown on the server irrespective of the number of users and sessions currently in use on the terminal server thus avoiding confusion. The 2X Universal Printer driver comes in 32 and 64 bit format.

When you install the 2X Terminal Server Agent on each Terminal Server, 2X Universal Printing is automatically installed.

To enable or disable the functionality of '2X Universal Printing' from each Terminal Server in the farm click on 'Universal Printing' in the navigation bar.

Then select the particular Terminal Server(s) and click '**Enable**' to enable 2x Universal Printing or click '**Disable**' to disable the universal printing functionality from the selected Terminal Servers.

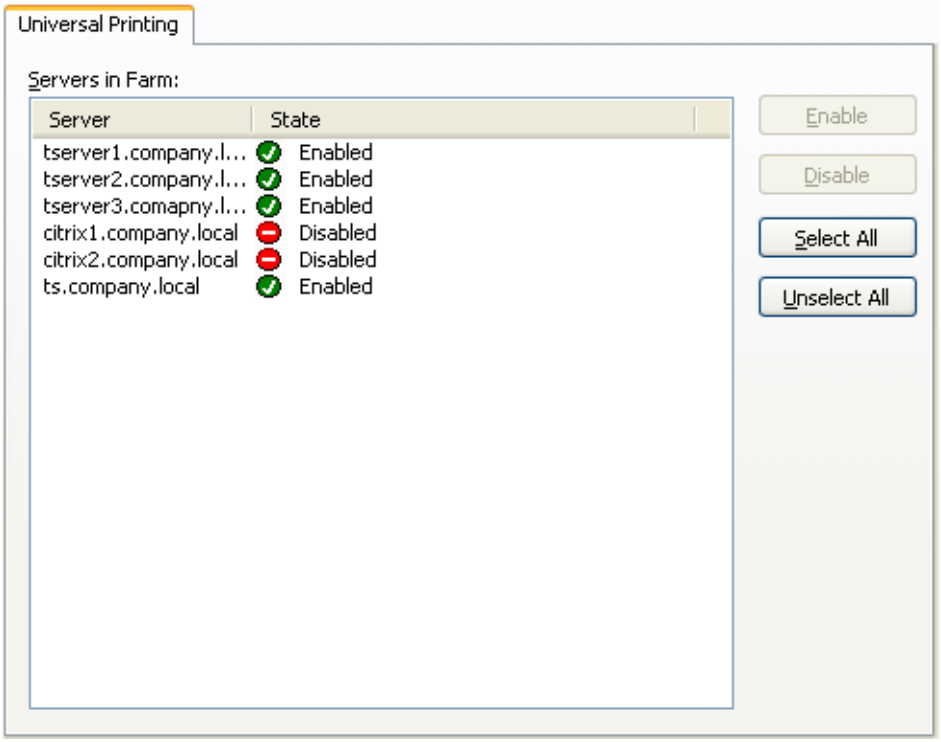

Figure 67 - Universal Printing page to enable or disable universal printing on each Terminal Server

CONNECTION SETTINGS

Client Gateway

In this page you may configure which port to use for 2X Client Gateway service while you may also enable or disable RDP and Citrix services.

The **2X Client Gateway Port** (default TCP 80) is used to tunnel all 2X traffic over this port. The traffic that can be tunneled through this port include the 2X Publishing Agent traffic (load balanced application and desktop publishing), HTTP Server and RDP traffic. 2X Client Gateway Port is also used to tunnel secure connections (SSL) over the same port.

The **RDP Port** (default TCP 3389) is used for clients who require basic load balanced desktop sessions. Connections on this port do not support published items.

The **Citrix Port** (default TCP 1494) is used for the incoming Citrix connections which will be forwarded to the configured Citrix servers according to the load balancing configuration. To disable this service, you may uncheck the check box in front of 'Citrix Port'.

Enable 'Broadcast 2X Client Gateway Address' checkbox to broadcast of the 2X Client Gateway address., and 2X Clients will be able to auto find their primary server (2X Client Gateway address).

NOTE: RDP Port cannot be used if the machine on which the 2X Client Gateway is installed has terminal services enabled.

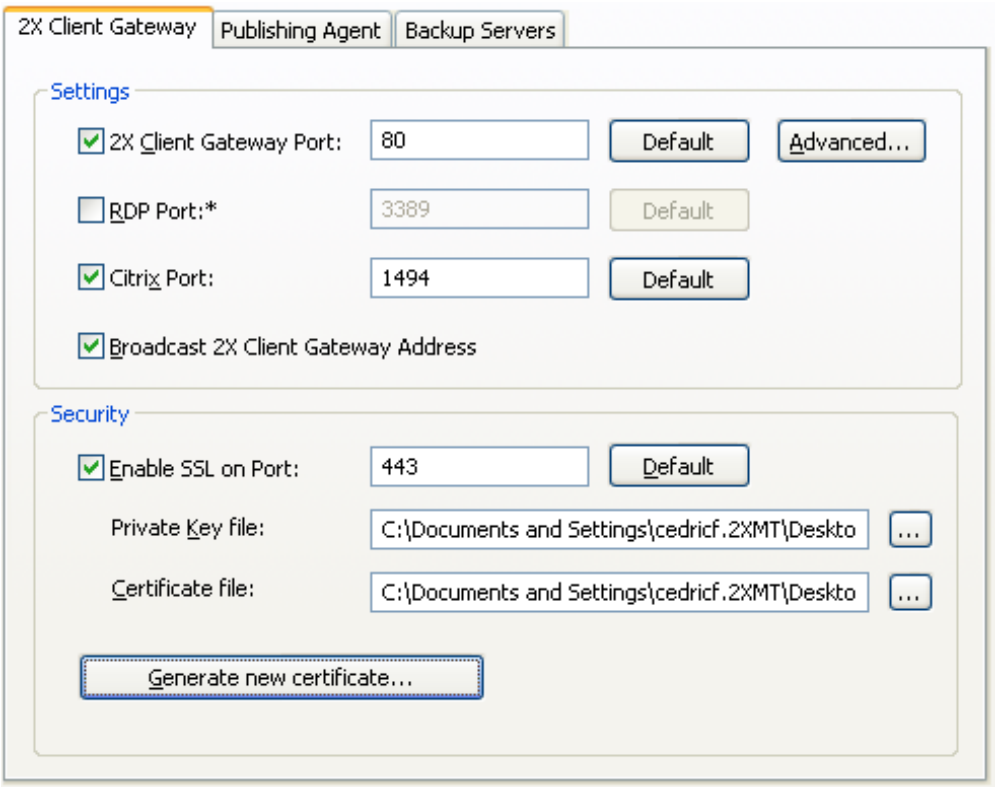

Figure 68 – Client Gateway settings and Security settings.

NOTE: You can change the port to any number you may want, as long as it does NOT conflict with any other application using the same port you choose.

Advanced Client Gateway Settings

2X Client Gateway tunnels all 2X traffic needed by 2X applications on a single port. This gateway service gives the ability to the System Administrator to tunnel the Terminal Servers (RDP), HTTP Server (81) and 2X Publishing (20002) over one port which by default is configured to port 80.

To configure the Advanced Client Gateway Setting, you'll need to assign a port number in the 'Client Gateway port' which by default is configured to port 80 (make sure that this port is not being used by another service) and then click the 'Advanced' button to configure the HTTP Server, and 2X Publishing Agent.

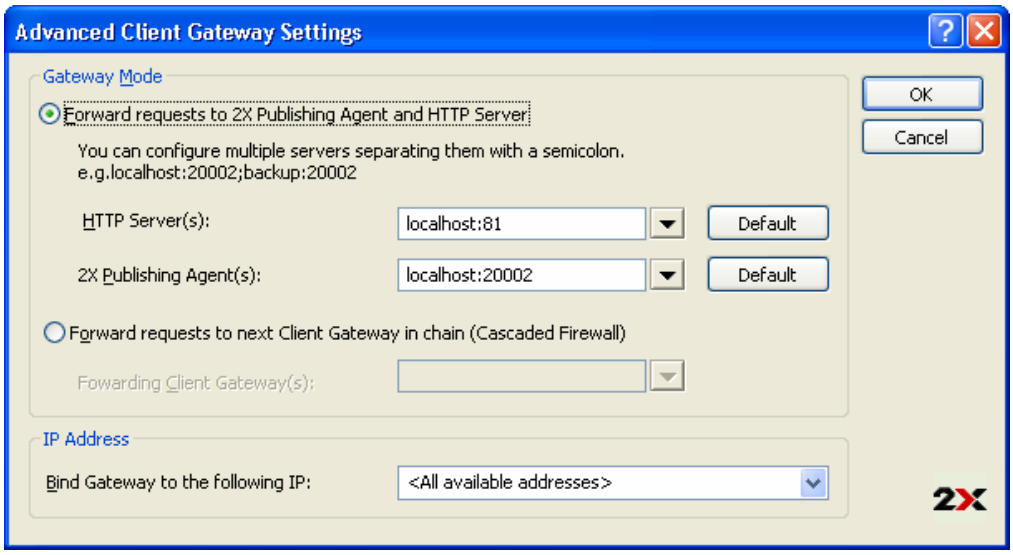

Figure 69 - Advanced Client Gateway Settings

This Advanced dialog allows you configure where is the HTTP server and the 2X Publishing Agent.

These services may be running on other Servers, and in this case you'll have to configure each setting with the correspondent IP address or computer name.

E.g. **HTTP Server:** webserver.internal.mycomapny:81

Advanced Client Gateway (Multiple 2X Client Gateways)

2X offers the solution to install multiple 2X Client Gateways. These solutions offer a lot of flexibility to the Administrators in such situations as displayed in the above diagram.

As displayed in the diagram below, both 2X Client Gateways are configured to forward requests to the same 2X Publishing Agent.

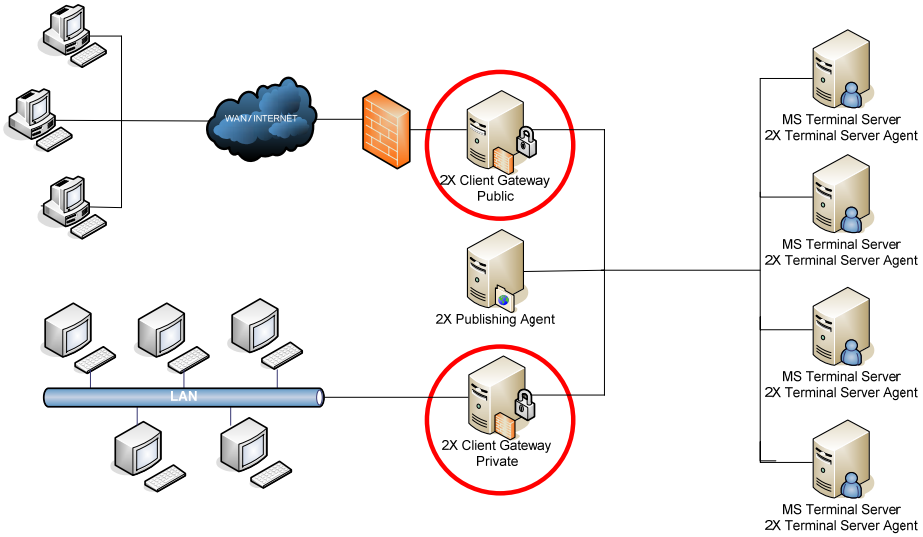

Figure 70 - Multiple 2X Client Gateways forwarding requests to 2X Publishing Agent

On each 2X Client Gateway, one should configure the Advanced Client Gateway settings and configure the 2X Publishing Agent.

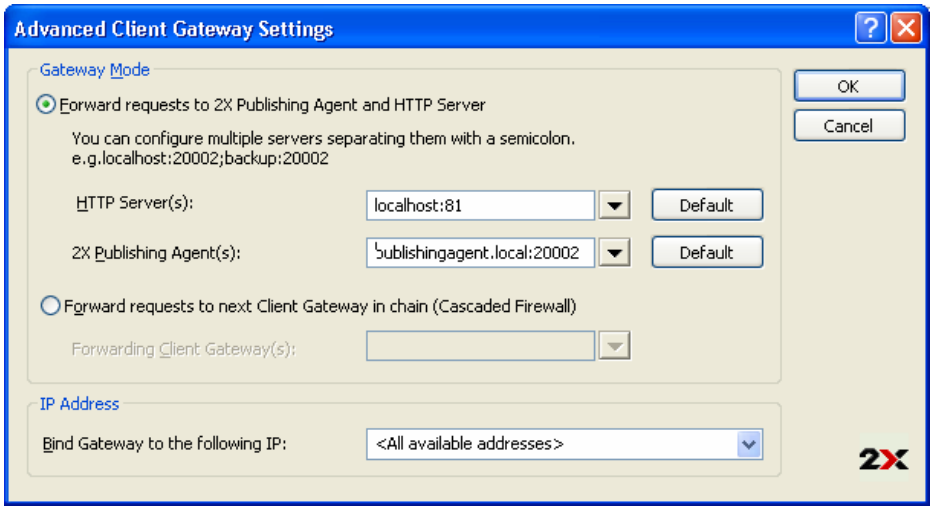

Figure 71 - Advanced Client Gateway Settings

One may also add additional 2X Publishing Agents by separating them with a semi colon or click on the drop down arrow '▾' which will open up a new window to allow you to enter more 2X Publishing Agents as displayed in the figure below.

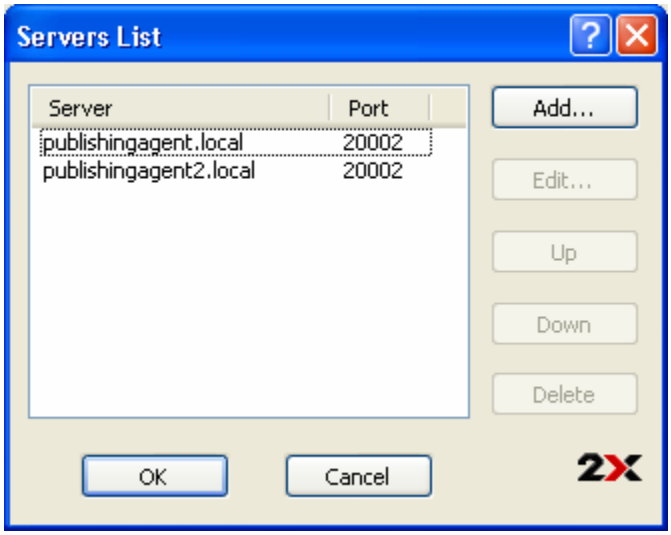

Figure 72 - Add 2X Publishing Agents list

The first publishing agent in the Servers list will be used by default. In the event that the first 2X Publishing Agent fails to respond, the next 2X Publishing Agent will be used.

NOTE: 2X Terminal Server Agents cannot be assigned to multiple 2X Publishing Agents. Therefore each 2X Publishing Agent should have each unique group of Terminal Servers. For more advanced and alternative scenarios and solutions please read 2X Server Based Computing Guide.

In order to install 2X Client Gateway, select 'Multiple Terminal Server' in the Installation Type and check '2X Client Gateway' option.

Please refer to the chapter entitled "Installing 2X ApplicationServer & LoadBalancer console" for more information about how to install the 2X Client Gateway.

Advanced Client Gateway (Forwarding Mode)

2X Client Gateway can forward requests to next Client Gateway in chain (Cascaded Firewall). With this option enabled the 2X Client Gateway installed on this machine [GATEWAY 1] (default running on port 80) will forward the requests to the next Client Gateway [GATEWAY 2] configured in the 'Forwarding Client Gateway(s) list.

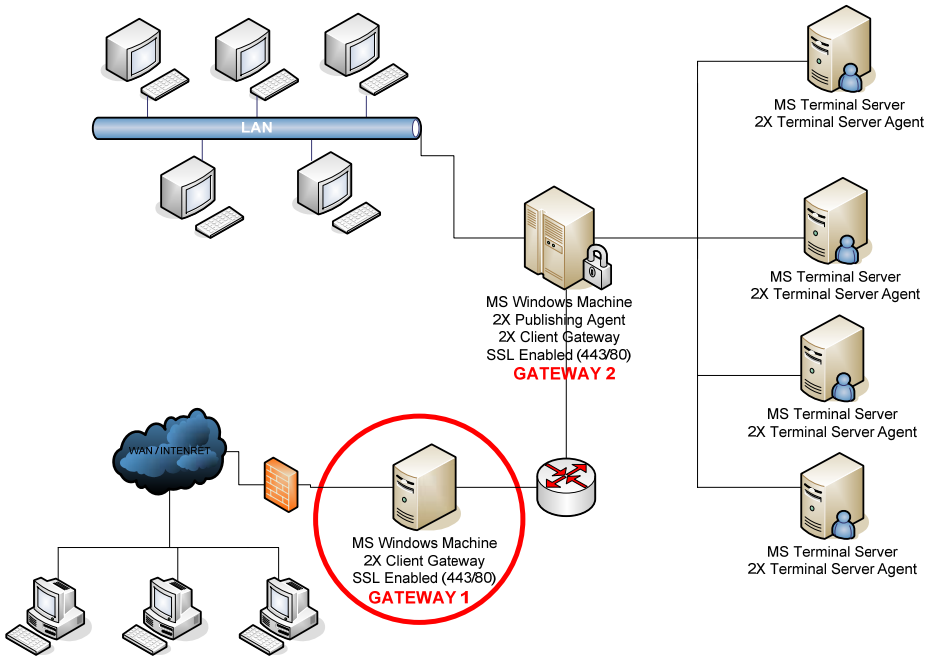

Figure 73 – Scenario with forwarding requests to next Client Gateway in chain

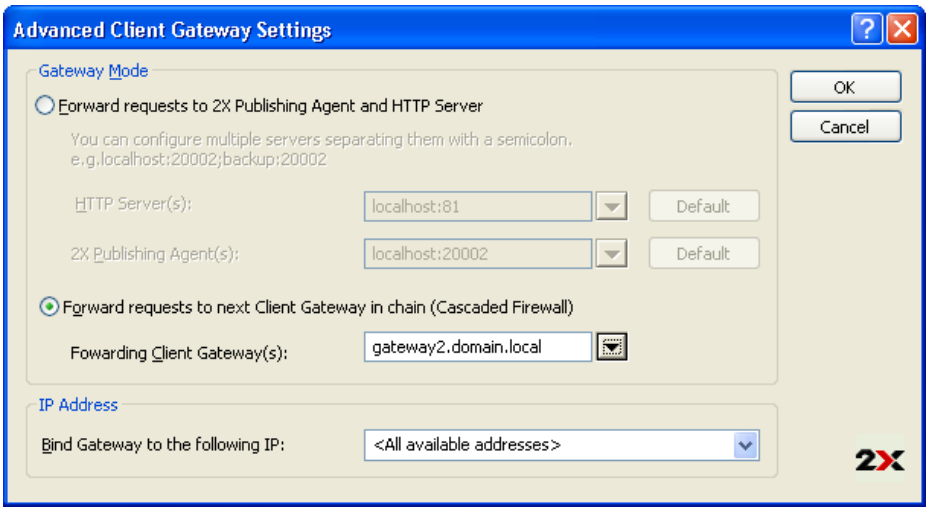

Figure 74 – Forwarding requests to next Client Gateway in chain

NOTE: All ports must be the same on each 2X Client Gateway. Therefore if 2X Client Gateway on server A is listening on port 80 and is configured to forward the requests to 2X Client Gateway on server B, server B should be configured to listen on port 80. This also applies for the Citrix port (default 1494) and SSL (default 443).

NOTE: In order to install 2X Client Gateway, select 'Multiple Terminal Server' in the Installation Type and check '2X Client Gateway' option.

Please refer to the chapter entitled "Installing 2X ApplicationServer & LoadBalancer console" for more information about how to install the 2X Client Gateway.

NOTE: If you have problems to start the service, check the Log File and Event Viewer for more information. Please note that if the configured 2X Client Gateway port is assigned with another service, the 2X Client Gateway Service will not be able to start the service. In this case you must either configure the default port (80) to another port or configure the other service to use another port.

Users will not be able to connect through the gateway if this service is stopped. Note that all connections running through 2X Client Gateway Service will be dropped if the service is stopped or restarted.

Bind Gateway to an IP Address

In the Advanced Client Gateway Settings it is also possible to bind the Gateway with certain IP. This feature gives the ability to the Administrator to open 2X Client Gateway port (default port 80) on certain IP instead of opening 2X Client Gateway port on all available addresses.

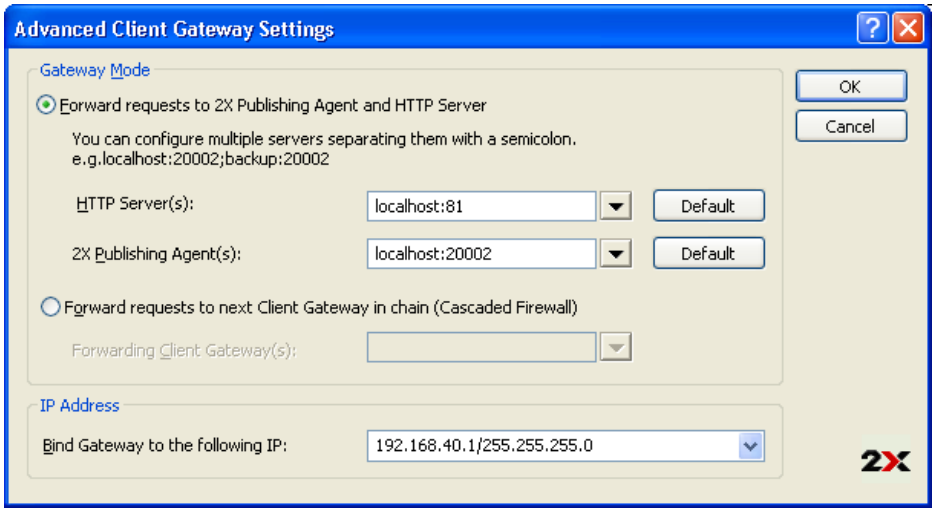

Figure 75 – Bind Gateway to an IP Address

Security

In this Client Gateway page you can enable Secure sockets Layer (SSL). In SSL mode, the 2X Client Gateway provides end-to-end SSL encryption to your terminal servers.

If you want your clients to connect to the 2X Client Gateway using SSL, make sure you click on 'Use SSL'. In this case a certificate and private key must be provided. You can use your own or simply click on 'Create a new certificate…' to create them. Enter all your information and the FQDN of your 2X ApplicationServer & LoadBalancer (Common name) and click '**Generate new certificate…'**.

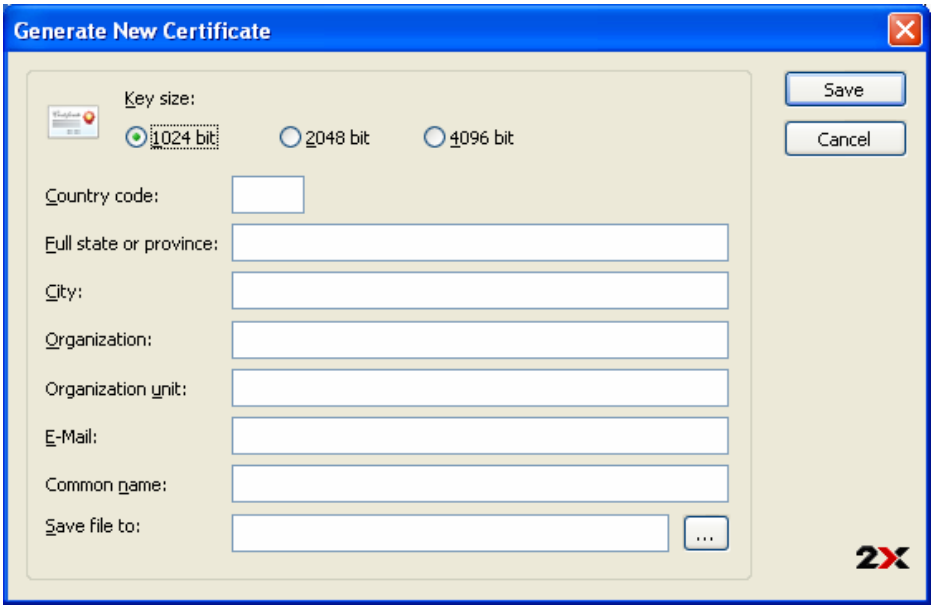

Figure 76 - Generate New Certificate

NOTE: If clients are not able to connect with port 443 because of firewalls or other policies, they could also use the 2X Client Gateway port (default 80) to connect using SSL. 2X Client Gateway offers the facility to tunnel SSL traffic over port 80.

Publishing Agent

In this page you may configure which port to use for the publishing agent service. You may also configure the authentication options.

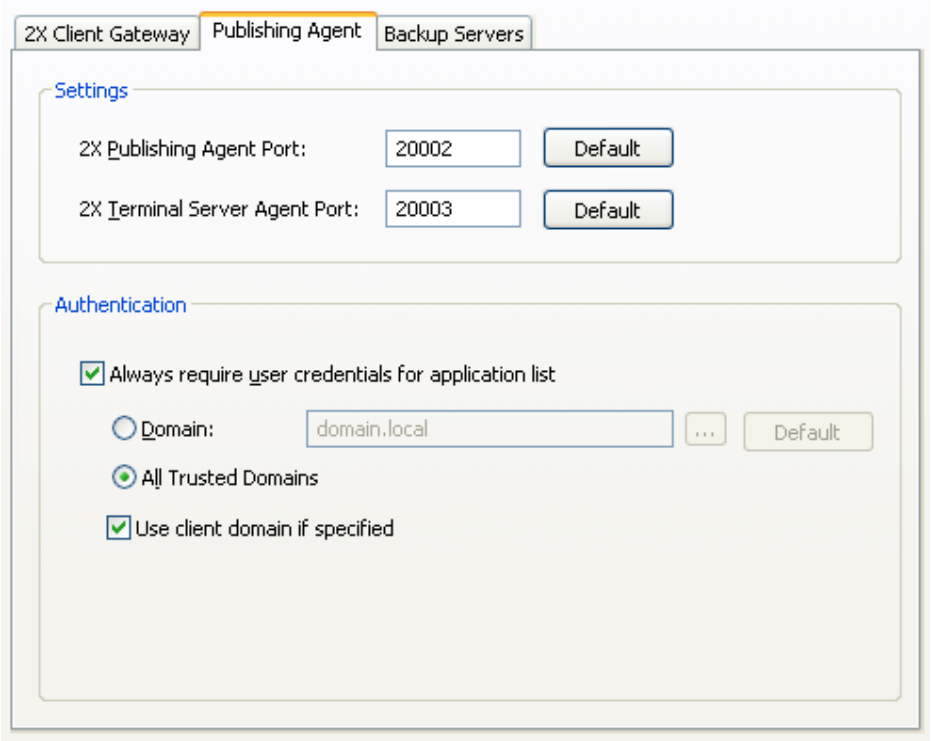

Figure 77 – Connection Settings page – Publishing Agent Tab

The **2X Publishing Agent Port** (default TCP 20002) uses a specific port to pass information about the published applications available to its clients. The default port is TCP 20002. Make sure the 2X Client Gateway has access to this port otherwise it will not be able to retrieve the published applications list and load balance the application requests.

The **2X Terminal Server Agent Port** (default TCP 20003) is used to communicate with the 2X Terminal Server Agents which should be installed on the Terminal Servers or Citrix MetaFrame Servers. The 2X Terminal Server Agent provides information to the 2X LoadBalancer and 2XApplicationServer over this port.

Authentication

To make sure that every single client authenticates against the 2X ApplicationServer & LoadBalancer to retrieve the list of published applications enable ‘Always require user credentials for application list’ checkbox.

To authenticate against a specific domain/workgroup you have to select the ‘domain’ radio button and enter the domain/workgroup required.

In case you want to select a new domain for authentication, simply click on ‘…’ button and select the new domain to be used. You can also use the ‘Default’ button to choose the default domain/workgroup used for authentication.

Select ‘All Trusted Domains’ if you want to authenticate with any trusted domain/workgroup.

By default ‘use client domain if specified’ is checked and this option will allow the user to specify the domain to authenticate in their client (2X ApplicationServer Client – General options - Domain). If the client does not specify any domain, and this option is enabled, the authentication is done with the domain specified in the Authentication panel as displayed in the above figure.

When this option is disabled, the clients will only authenticate with the domain specified in the domain field of the authentication panel on the server side.

We recommend you selecting ‘Always require User Credentials for application list’ so that all users must authenticate before acquiring the application list.

Make sure to click ‘Apply’ to activate the above settings.

NOTE: In case that you want to make authentication with a workstation which is not joined with a domain you can also authenticate with the local users of the workstation. In order to specify authentication with such a workstation you must enter [workgroup_name] / [machine_name]. Therefore if you would like to authenticate against a machine named ‘SERVER1’ and member of workgroup named ‘WORKGROUP’ you would have to enter: WORKGROUP/SERVER1 in the domain field.

NOTE: In order to avoid user filtering problems, it is suggested to use the NetBIOS name instead the FQDN in the domain field.

Backup Servers

In this page one can add Backup Servers so that if the Master server fails, the next server in the list takes over.

The backup servers can also be used as additional Client Gateways to distribute the load on the gateways.

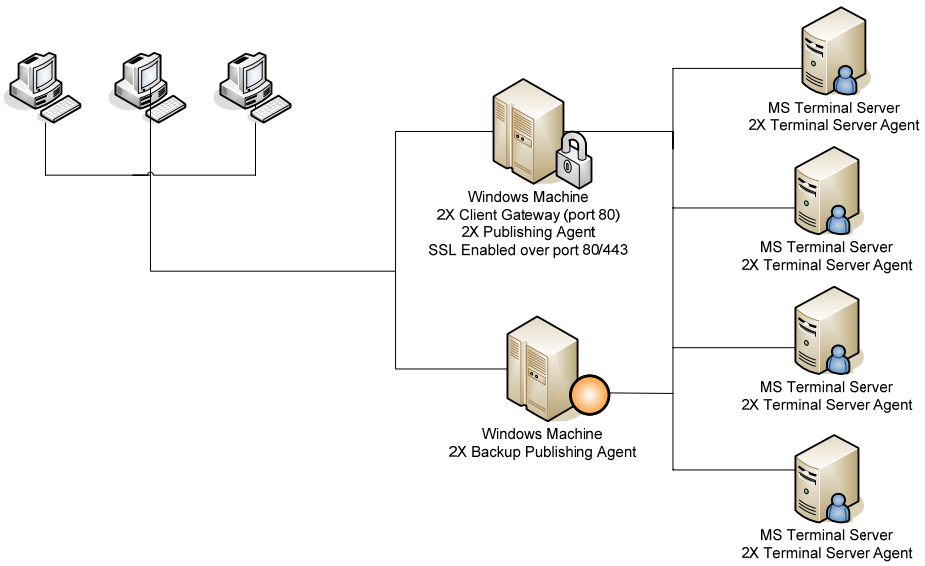

Figure 78 - Redundant ApplicationServer & LoadBalancer

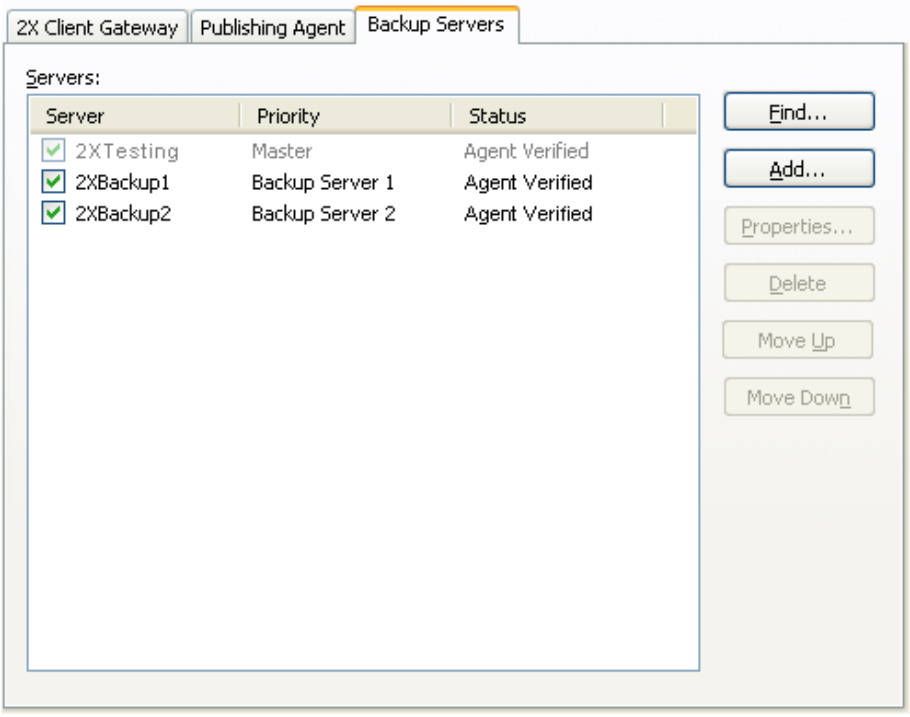

Figure 79 - Backup Servers

Adding 2X Backup Servers

1. To add '2X Backup Servers' click the '**Find…**' button. A new dialog will show the available servers in the local domain which can be used as Backup Servers.

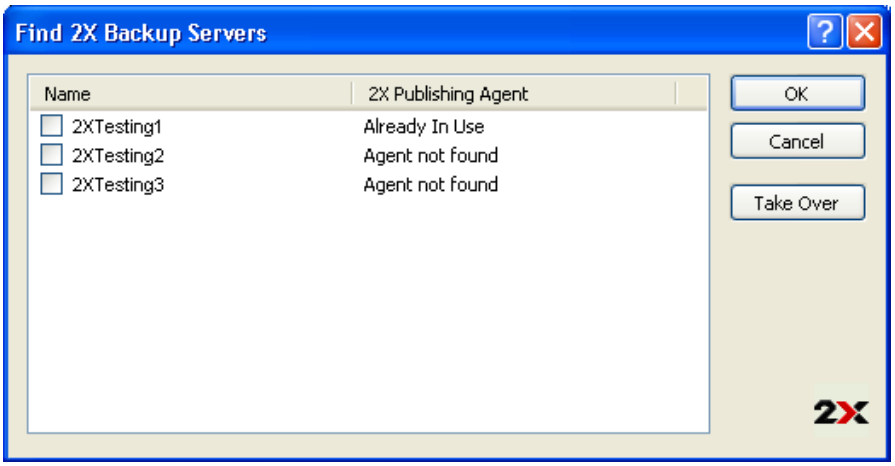

Figure 80 - Find 2X Backup Servers

2. When the state of selected server is 'Agent Not Found' it means that 2X Publishing Agent is not installed on the selected server. Therefore you would need to install this service by clicking the '**Install Agent…**' button.

3. Enter administrative credentials to be able to install the 2X Publishing Agent on the selected server which will be used as a backup server.

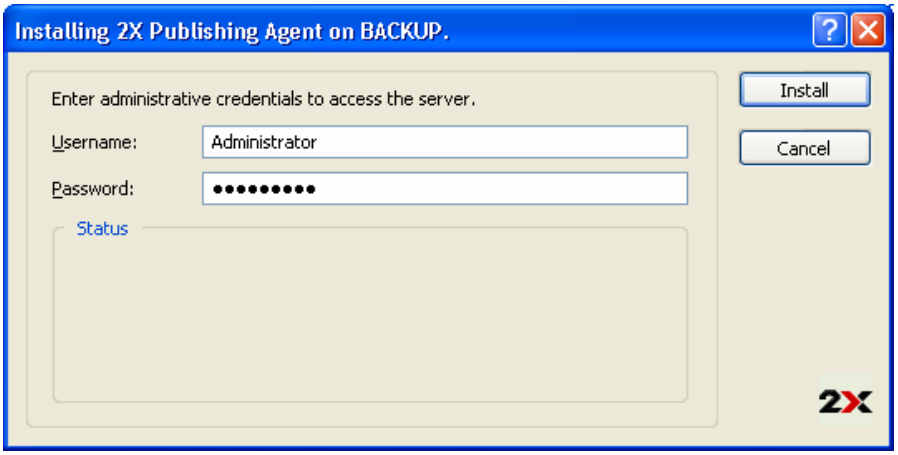

Figure 81 - Installing 2X Backup Server

4. Click '**Install**' after you've entered the administrative credentials. You should note that service is installed successfully if the installation is done completely.

5. Click '**Done**' when finished.

When 2X Publishing Agent is already in use one can '**Take Over**' the server and use it as a backup server.

NOTE: If a 2X Publishing Agent is already in use it means that the particular server is already configured as a master server in another farm. Taking over this server would override any settings currently configured on the particular machine.

One can also use the '**Add…**' button to manually add 2X Backup Server as shown in the figure below. After you've entered the name or the IP of the server to be used as a backup server click '**Next**'.

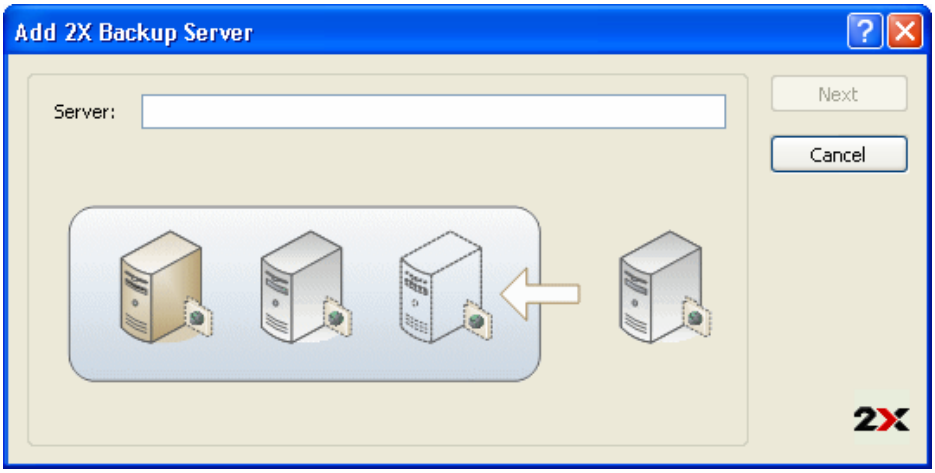

Figure 82 - Add 2X Backup Server

A status information message will give you guide what to do next. Usually you'll have to install the 2X Backup Server by clicking the '**Install…**' button. Then proceed with steps 3 – 5 done in the previous section. If an old version of 2X backup server is already installed one would have to update the server by clicking the '**Update**' button.

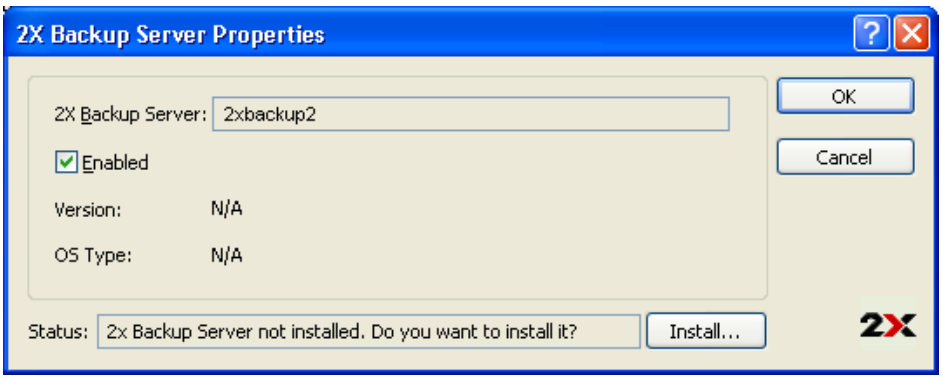

Figure 83 - 2X Backup Server Properties

NOTE: The '**Install…**' button change according to the status of the selected server. In fact it will change to '**Update…**' if an old version of the 2X Backup Server is found, while it will change to '**Take Over**' if the selected server is already configured with a 2x Publishing Agent configured as a master server.

Modifying 2X Backup Servers

To change the properties of each backup server, select the particular server and click '**Properties**'. One can enable or disable the selected backup server while one can also install, update or uninstall the backup server from the properties dialog.

To delete a particular backup server, select the required server from the Backup Servers list and click '**Delete**'.

Each backup server in the list is given a priority. By default the local 2X Publishing Agent is given the Master priority and this cannot be changed. One can change the priority of the backup server.

To assign a higher priority in the backup list select the required backup server from the list and click '**Move up**'.

To assign a lower priority in the backup list select the required backup server from the list and click '**Move Down**'.

The Backup Server with priority configured as 'Backup Server 1' will be the first backup server to take over in case the Master Server is not available. Additional backup servers will take over in case 'Backup Server 1' is also not available according to their priority.

Promoting a Backup server to a Master Server

When the primary server cannot be recovered due to various reasons such as hardware failure or OS startup failure one can easily promote a 2X Backup Server to a Master server.

First launch the 2X Application Server & LoadBalancer console located in the backup server.

NOTE: When you add and install 2X Backup Servers, all the required files are automatically installed remotely on each backup server. Therefore to launch the 2X Console of a backup server, one can easily launch 2X Console located at “C:\Program Files\2X\ApplicationServer\2XConsole.exe”.

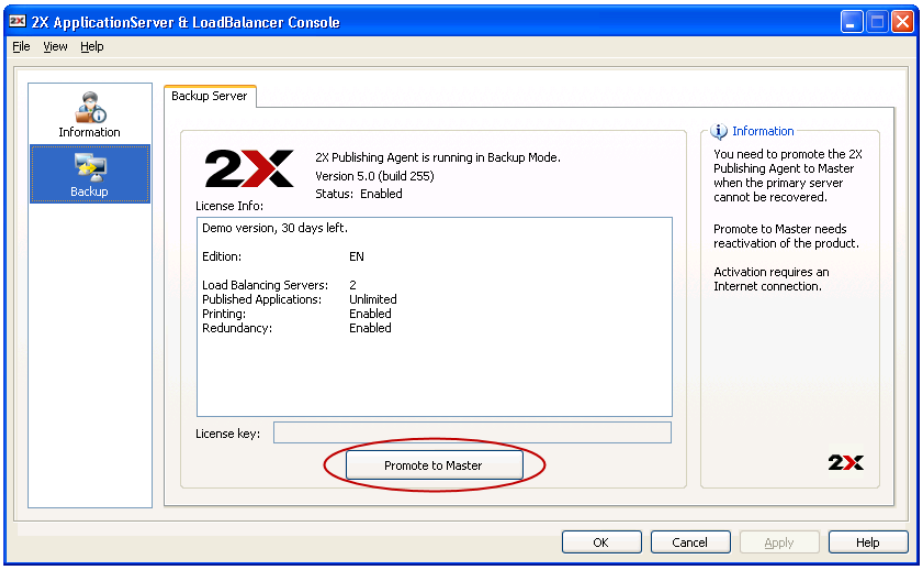

Figure 84 - Promote a 2X Backup Server to a Master

Secondly click ‘Promote to Master’ button to promote the current backup server as a Master Server. Promotion to a Master server needs reactivation of the products but this is done automatically and it requires an Internet connection.

Finally the 2X Terminal Server Agents will use this server (previously used as a 2X Backup server) as their Master server.

INFORMATION

Status

In this page you can monitor the status of each service, while you can also monitor sessions connected on the Terminal Servers or Citrix Servers enabled in the farm. The status is refreshed every minute. You may also use the 'Refresh' button to manually refresh the content.

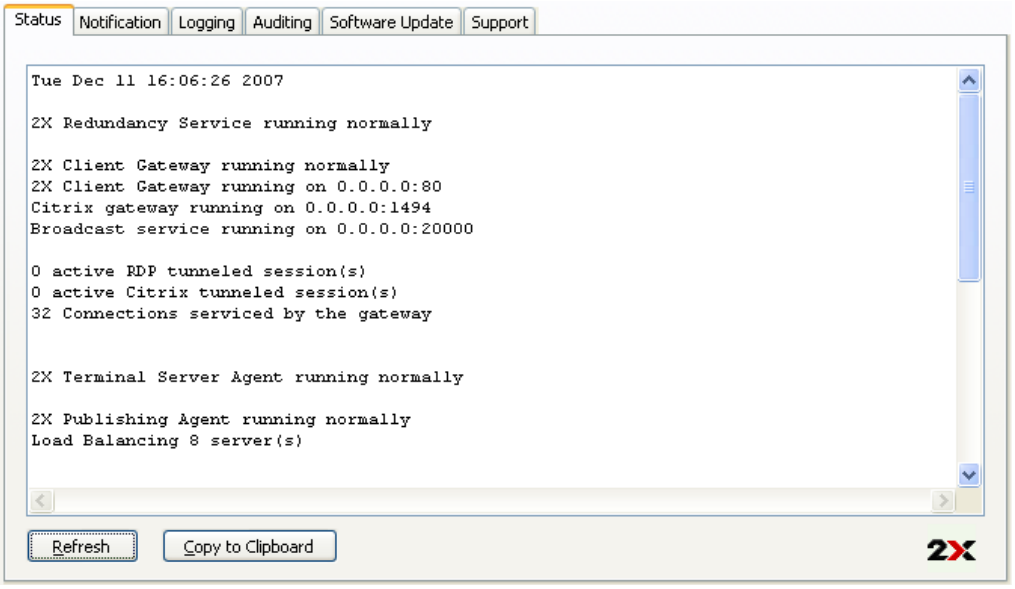

Figure 85 - Information page – Status Tab

Notification

To be notified when some counters exceed a certain amount, you will need to enable the notification options. In the Notification tab you'll be notified if some server parameters exceed what you define as appropriate.

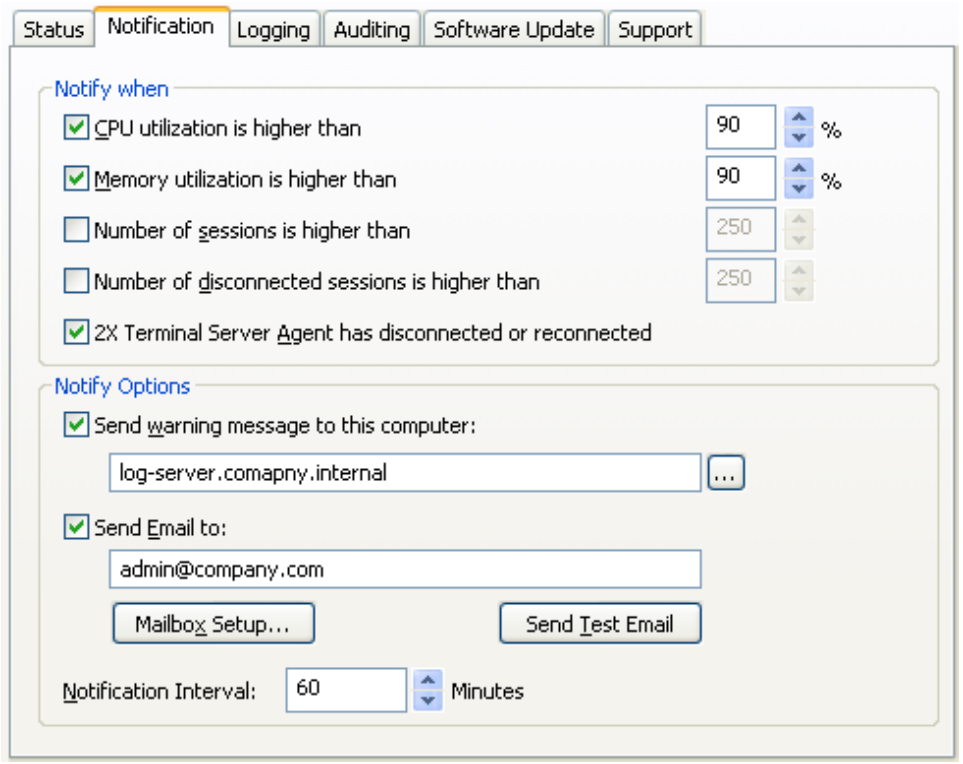

Figure 86 - Notification

You can choose any of the counters monitored by the 2X Terminal Server Agent and set the appropriate number accordingly. For example if you want to be notified if a terminal server is handling more than 45 sessions or if it has more than 10 disconnected sessions, simply check the appropriate checkbox and set the right amount.

After selecting which counters to monitor you must select how you would like to be notified. The 2X ApplicationServer & LoadBalancer is capable of sending you network messages to a certain computer on your network and/or send an email message to any email address of your choice.

To send a message to a computer on the network, select 'Send warning message to this computer:' and click on '…' to select any of the available machines on your network.

To send an email to a predefined email address you must first setup the mailbox details. Select ‘Send Email to’, type in the receiver’s email address (for example, admin@company.com) and click on ‘Mailbox Setup…’.

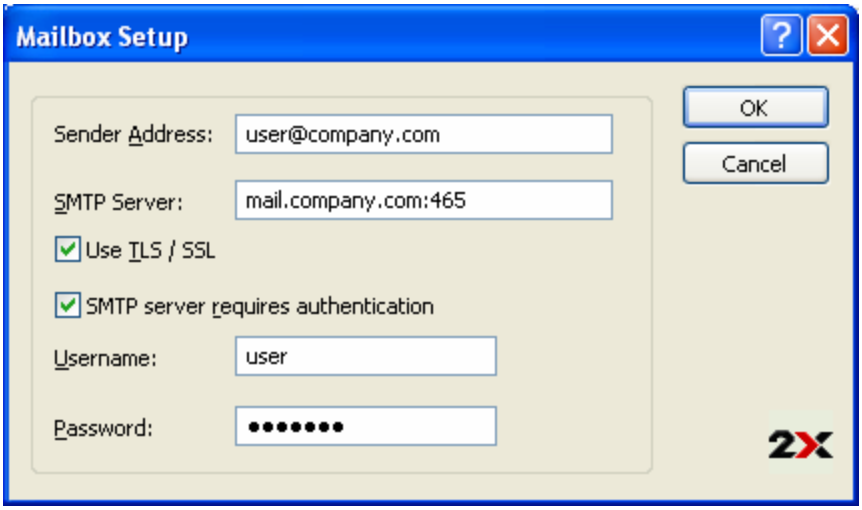

Figure 87 - Mailbox Setup

Type in the sender address you would like to see (for example, user1@company.com) and the SMTP server address to be used. If your SMTP server requires authentication when sending emails through it, make sure you select ‘SMTP Server requires authentication’ and type in the correct username/password to be used.

One can also configure different ports for the SMTP server by append ‘:’ port. E.g. mail.company.com:465

To connect with an SMTP server that requires a secure connection enable ‘Use TLS/SSL’.

After you setup the Mailbox details, simply click Ok and then ‘Send Test Email’. The email address you type on the main Notification Tab should get the test email.

To configure the notification period that each warning message will be sent to a computer on the network or by mail, type the amount of minutes in the Notification Interval.

Logging

The Logging tab allows you to enable logging and to set the location of the log file to be used.

You may enable logging by ticking the '**Enable Logging**' Check Box in the logging tab. You may also enable 'Log Servers Performance' and performance counters of each load balanced server will be saved.

Then you may also set the location of the log file to be used. The Log file will save information about the incoming connections like their originating IP address, the terminal server that was chosen and so on.

To view the contents of the log file, click the 'View Log…' button and to purge the log file click the 'Clear Log File' button.

Backup Log File

It is recommended to backup the log file in a compressed file. This could be done by enabling the 'Backup log file' checkbox. Backup can be scheduled on daily, weekly or monthly basis.

Please note that the backup log file will be located in the same directory of the log file.

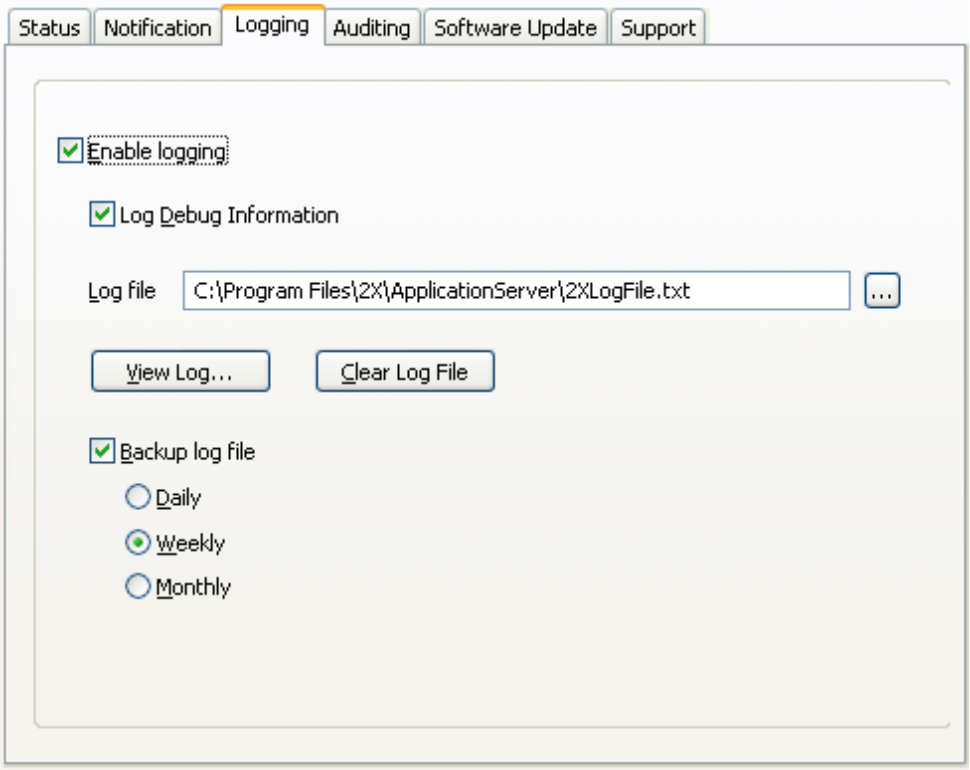

Figure 88 – Information Page - Enable Logging

Auditing

In this page you can enable auditing and set the location of the auditing file. The auditing log is an important and valuable tool as it can give information about the sessions opened and the total time of each session.

Backup Audit File

It is recommended to backup the audit file in a compressed file. This could be done by enabling the 'Backup audit file' checkbox. Backup can be scheduled on daily, weekly or monthly basis.

Please note that the backup audit file will be located in the same directory of the audit file.

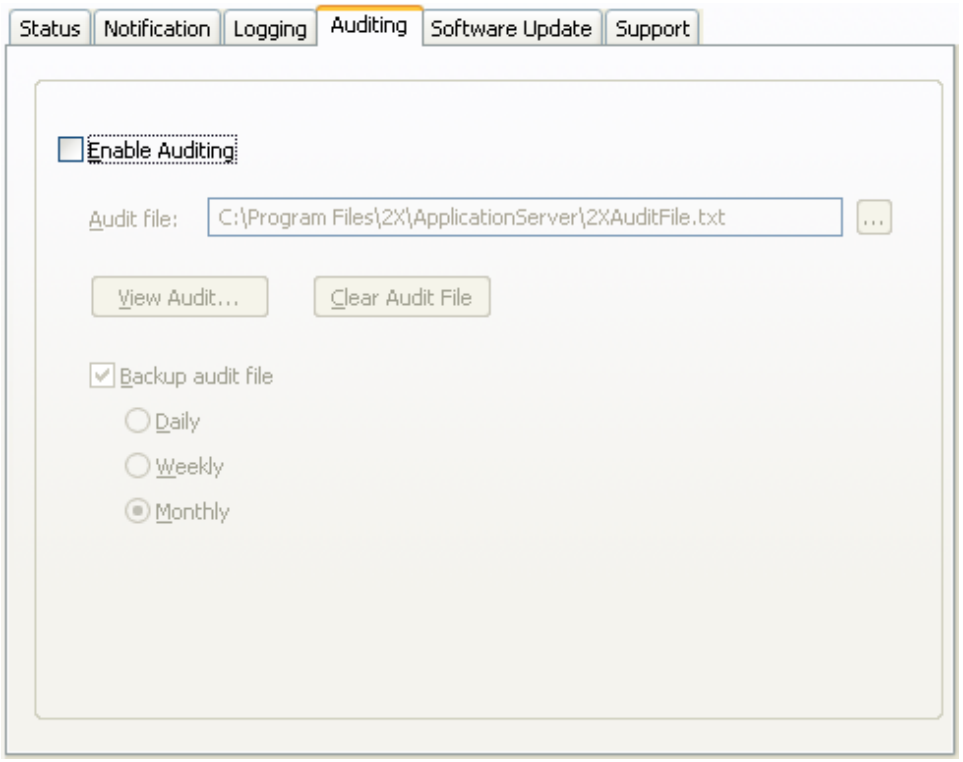

Figure 89 – Information Page - Auditing

Software Update

In this page you can set the 2X ApplicationServer & LoadBalancer Console to check for updates by enabling 'Check for updates when launching 2X ApplicationServer & LoadBalancer Console.'

You may also click the 'Check Now…' button to check for the latest updates.

In the Modules Information filed you can find information about the modules used by 2X ApplicationServer & LoadBalancer. This field will give you an overview of what files are installed and their current version. Please report this information when contacting the technical support.

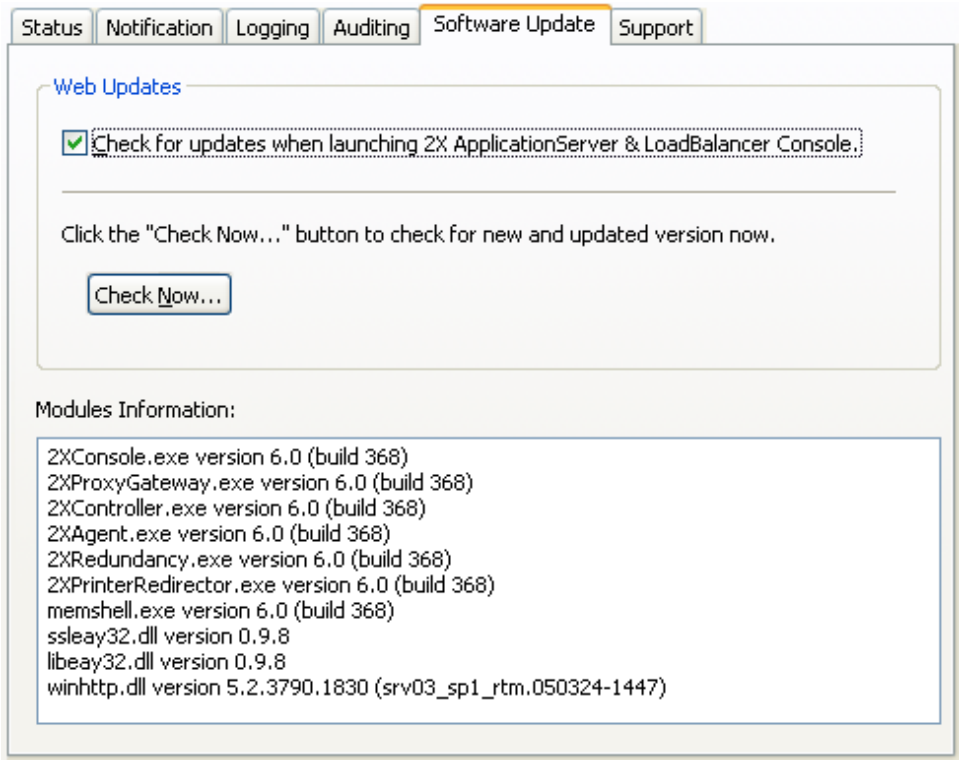

Figure 90 – Software Update and Modules Information

Support

For further technical support queries or further information about 2X products view contact details on this tab.

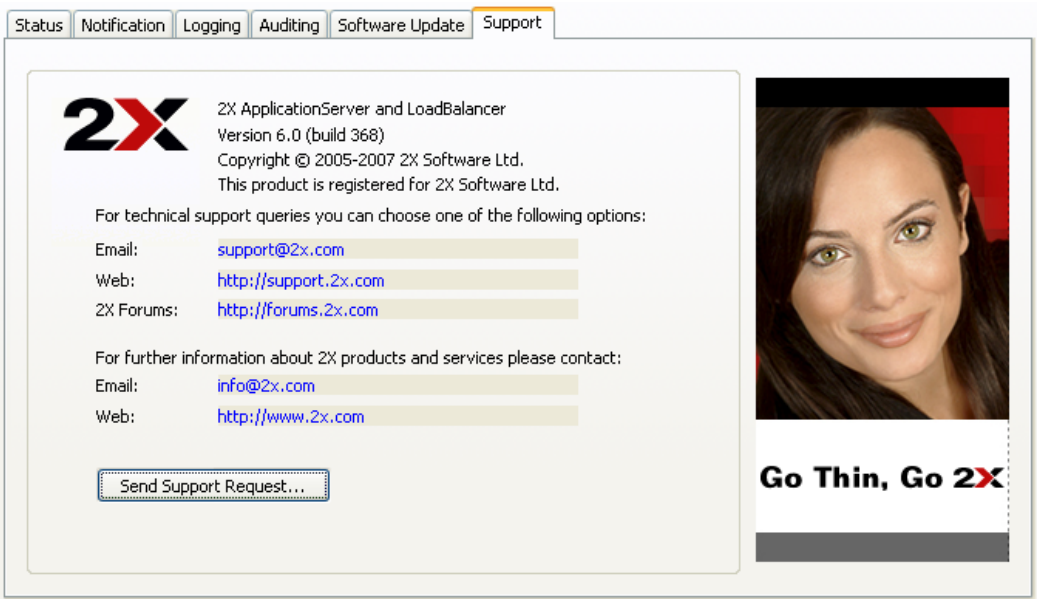

Figure 91 - Information page - Support Tab

Click on 'Send Support Request…' button to contact 2X Support directly from the console. Fill in the required details, add an attachment if you require and click 'Send'. You should configure your mail settings in order to contact 2X Support from 2X Console.

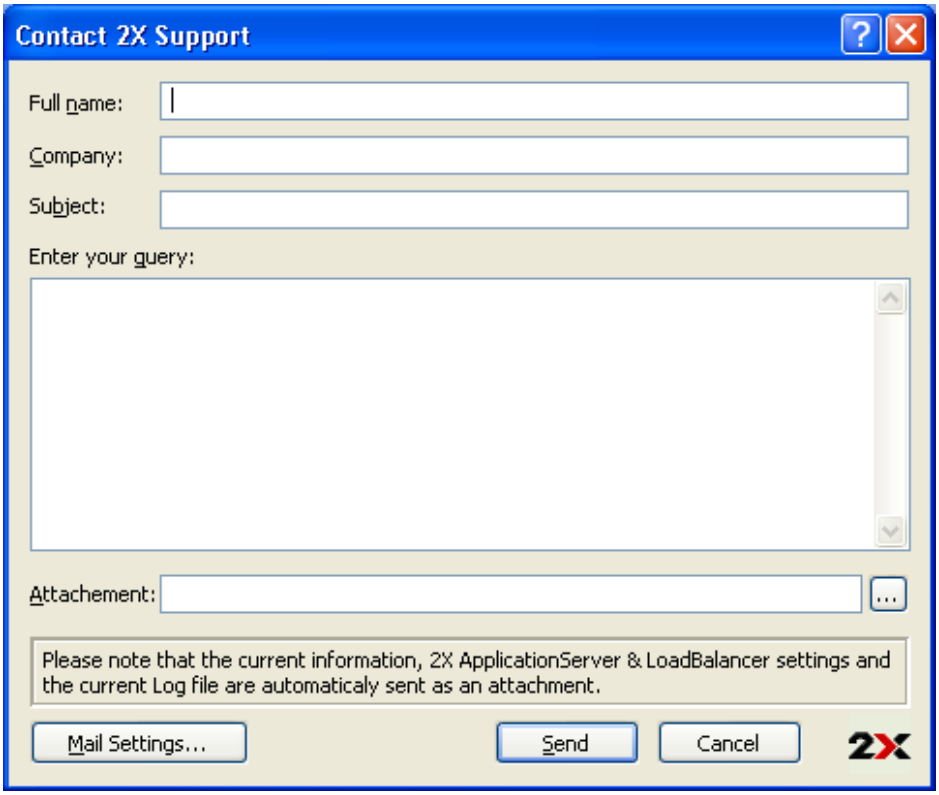

Figure 92 – Contact 2X Support

LICENSING

The licensing tab will allow you to view licensing details and enter a license key. If you have purchased a new license key, click the '**Activate…**' button. Fill in the required details in the 'License Activation' dialog and click the '**Activate**' button to activate your license key.

ApplicationServer & LoadBalancer

NOTE: If you decide to allow more users to connect to your published applications, exceeding your current license, a new license key will be required. If you decide to expand your load balanced farm and purchase an additional terminal server license, a new license key will be issued.

After you purchase and receive your new license key simply click the '**Activate…**' button again and type the new license in the 'License key' field.

After you receive your new license key simply enter it on the Licensing – LoadBalancer tab and click the '**Apply**' button.

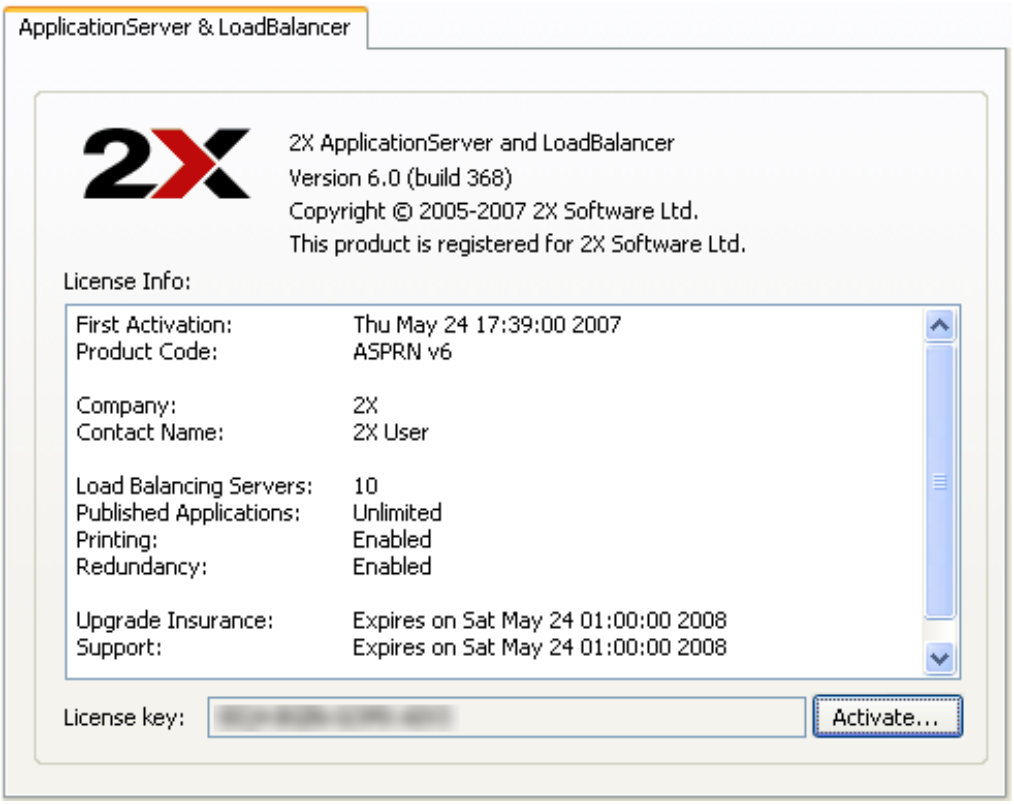
ApplicationServer & LoadBalancer
2X ApplicationServer and LoadBalancer
Version 6.0 (build 368)
Copyright © 2005-2007 2X Software Ltd.
This product is registered for 2X Software Ltd.
License Info:
First Activation: Thu May 24 17:39:00 2007
Product Code: ASPRN v6
Company: 2X
Contact Name: 2X User
Load Balancing Servers: 10
Published Applications: Unlimited
Printing: Enabled
Redundancy: Enabled
Upgrade Insurance: Expires on Sat May 24 01:00:00 2008
Support: Expires on Sat May 24 01:00:00 2008
License key:
Activate...

Figure 93 - ApplicationServer & LoadBalancer licensing

License Activation

In order to activate the license key, fill in the required contact details and type the license in the 'License key' field and click 'Activate' as shown in the figure below.

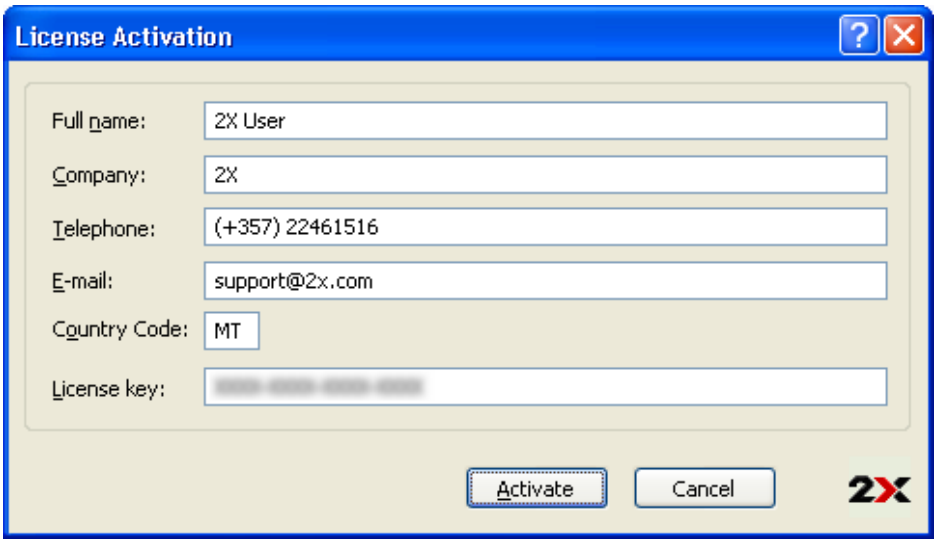

Figure 94 – License Activation

When the license key is activated, you should get a dialog which states that the license key is activates successfully.

Figure 95 - License Key activated successfully

NOTE: ApplicationServer & LoadBalancer version 6 requires a version 6 license. Clients that have old licenses can contact support to retrieve the version 6 licenses.

2X ADDITIONAL UTILITIES

2XA Generator

2XA Generator is a command line utility to create 2xa files. 2xa files contains the required information to launch a published item. To use 2XA Generator, run 2XAGen.exe [c:\Program Files\2X\ApplicationServer\2XAGen.exe] in a command prompt and pass the appropriate parameters.

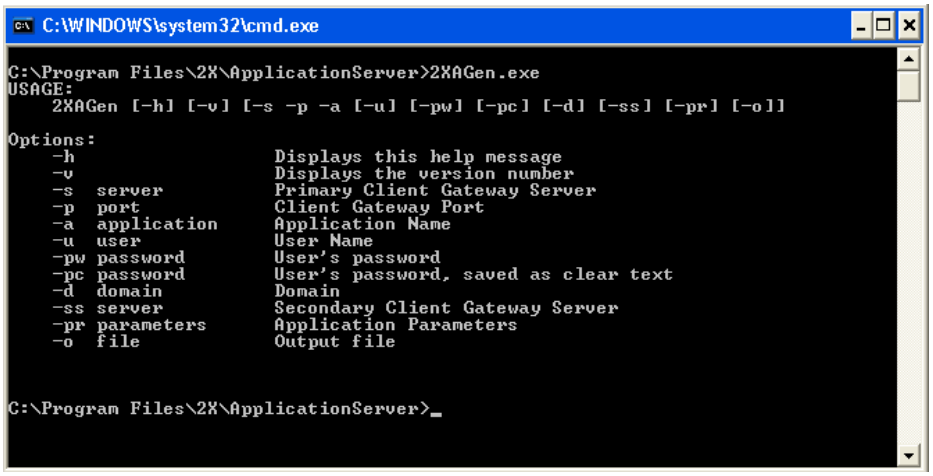
C:\WINDOWS\system32\cmd.exe
C:\Program Files\2X\ApplicationServer>2XAGen.exe
USAGE:
2XAGen [-h] [-v] [-s -p -a [-u] [-pw] [-pc] [-d] [-ss] [-pr] [-o]]
Options:
-h Displays this help message
-v Displays the version number
-s server Primary Client Gateway Server
-p port Client Gateway Port
-a application Application Name
-u user User Name
-pw password User's password
-pc password User's password, saved as clear text
-d domain Domain
-ss server Secondary Client Gateway Server
-pr parameters Application Parameters
-o file Output file
C:\Program Files\2X\ApplicationServer>

Figure 96 – 2XA Generator

Parameters

```
-h              Displays the help message
-v              Displays the version number
-s  server      Primary Client Gateway Server
-p  port        Client Gateway Port
-a  application Application Name
-u  user        User Name
-pw password    User's password
-pc password    User's password, saved as clear text
-d  domain      Domain
-ss server      Secondary Client Gateway Server
-pr parameters  Application Parameters
-o  file        Output file
```

2XA Generator Examples

EXAMPLE 1:

```
2XAGen.exe -s "TSServer1" –p 80  -a "Word"
```

OUTPUT OF EXAMPLE 1:

```
<App xmlns:dt="urn:schemas-microsoft-com:datatypes">
<Connection>
      <Port dt:dt="ui4">80</Port>
      <PrimaryServer>TSServer1</PrimaryServer>
</Connection>
<Startup>
      <PublishedApp>Word</PublishedApp>
</Startup>
</App>
```

EXAMPLE 2:

```
2XAGen -s "TSServer1" -p 80 -a "Word" -u "Testuser1" –pc
"mypassword" -d "mydomain" -ss "TSServer2" –pr"C:\document.doc"
-o word.2xa
```

OUTPUT OF EXAMPLE 2: [content of word.2xa]

```
<App xmlns:dt="urn:schemas-microsoft-com:datatypes">
<Connection>
      <Port dt:dt="ui4">80</Port>
      <PrimaryServer>TSServer1</PrimaryServer>
      <SecondaryServer>TSServer2</SecondaryServer>
</Connection>
<Logon>
      <Passworddt:dt="bin.base64">nqLSKZch8PVBrG5l+Iq0qQ==</Pas
sword>
      <Domain>mydomain</Domain>
      <User>Testuser1</User>
</Logon>
<Startup>
      <OverrideParams>C:\document.doc</OverrideParams>
      <PublishedApp>Word</PublishedApp>
</Startup>
</App>
```

INSTALLING 2X APPLICATIONSERVER & LOADBALANCER CLIENT FOR WINDOWS

2X ApplicationServer & LoadBalancer Client System requirements

- Windows 2000, XP, Vista and up.
- The same hardware requirements as specified by Microsoft when using any of these workstation OSs
- Some features (like high color, sound, etc) will only be available if your workstation has the appropriate hardware installed and properly configured.

Installing 2X ApplicationServer and LoadBalancer Client

Before you run the installation procedure please make sure that you are logged on as Administrator and the system requirements are met.

1. Run the 2X ApplicationServer & LoadBalancer Client setup program by double clicking on the '**2XAppServer-LoadBalancer-Client.msi'** file on the client machine. A welcome dialog will appear. Close other Windows programs and click '**Next'**.

2X ApplicationServer and LoadBalancer Client Setup
Welcome to the 2X ApplicationServer and LoadBalancer Client Setup Wizard
The Setup Wizard will install 2X ApplicationServer and LoadBalancer Client on your computer. Click Next to continue or Cancel to exit the Setup Wizard.
Go Thin, Go 2X
Back
Next
Cancel

Figure 97 – 2X ApplicationServer & LoadBalancer Client Setup Program welcome screen.

2. Accept the License Agreement and click '**Next'**.

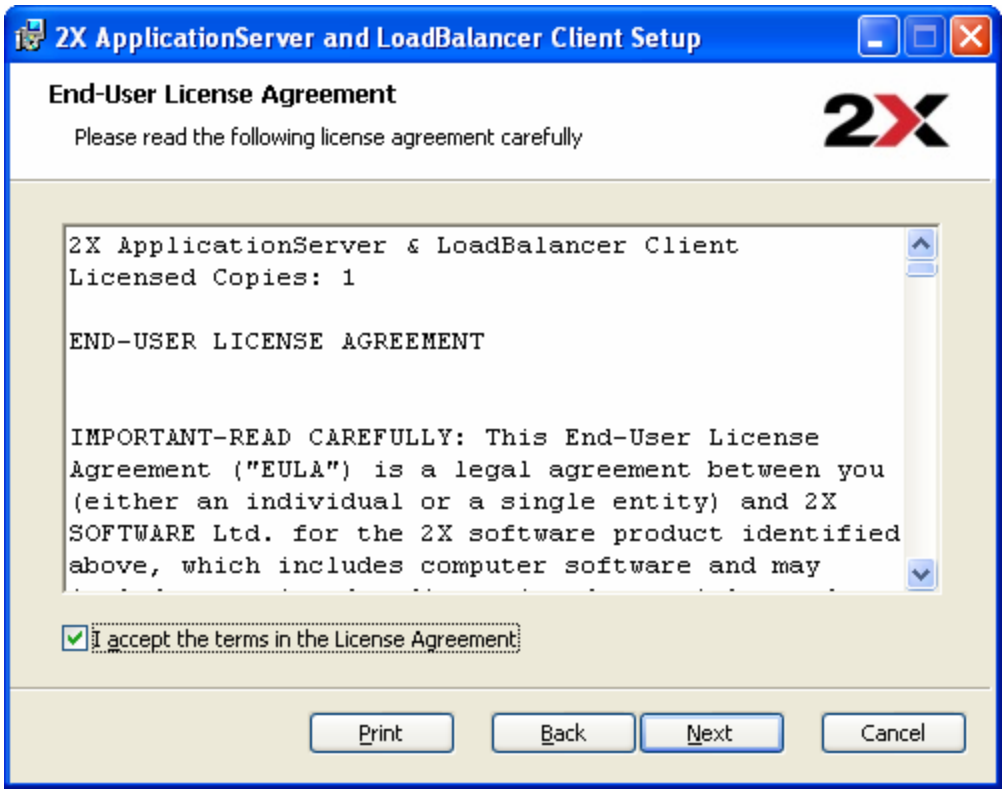
2X ApplicationServer and LoadBalancer Client Setup
End-User License Agreement
Please read the following license agreement carefully
2X ApplicationServer & LoadBalancer Client
Licensed Copies: 1
END-USER LICENSE AGREEMENT
IMPORTANT-READ CAREFULLY: This End-User License Agreement ("EULA") is a legal agreement between you (either an individual or a single entity) and 2X SOFTWARE Ltd. for the 2X software product identified above, which includes computer software and may
I accept the terms in the License Agreement
Print
Back
Next
Cancel

Figure 98 – The EULA.

3. Select the location where you want to install the 2X ApplicationServer & LoadBalancer Client and click '**Next'**.

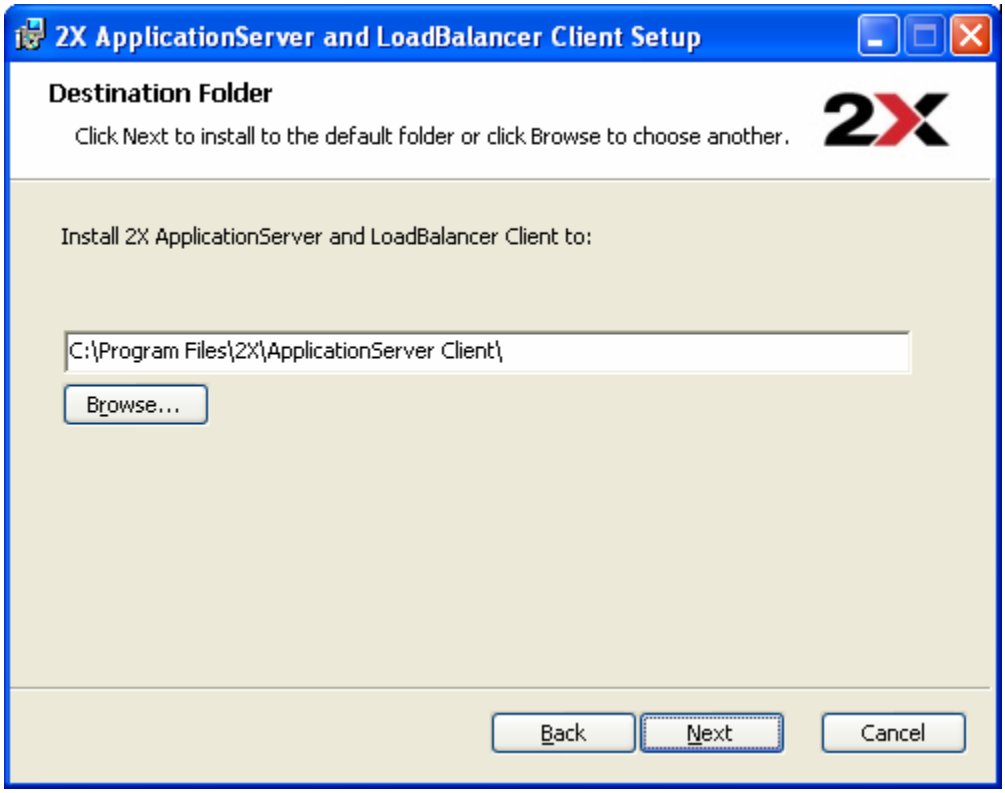
2X ApplicationServer and LoadBalancer Client Setup
Destination Folder
Click Next to install to the default folder or click Browse to choose another.
Install 2X ApplicationServer and LoadBalancer Client to:
C:\Program Files\2X\ApplicationServer Client\
Browse...
Back
Next
Cancel

Figure 99 – Choosing the location where the 2X ApplicationServer & LoadBalancer Client will be installed.

4. To start copying files click '**Install'**.

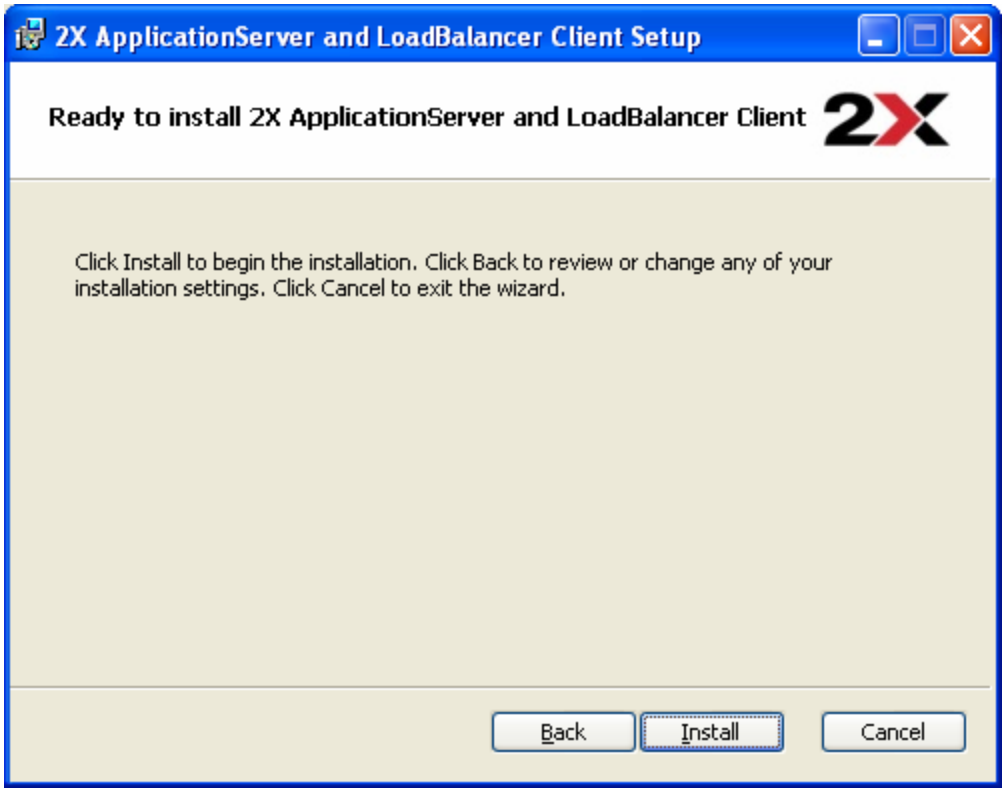
2X ApplicationServer and LoadBalancer Client Setup
Ready to install 2X ApplicationServer and LoadBalancer Client
Click Install to begin the installation. Click Back to review or change any of your installation settings. Click Cancel to exit the wizard.
Back
Install
Cancel

Figure 100 – Starting the installation program.

5. Click 'Yes' to install the 'Single Sign-On' component. This component will use your credentials to connect with the 2X ApplicationServer.

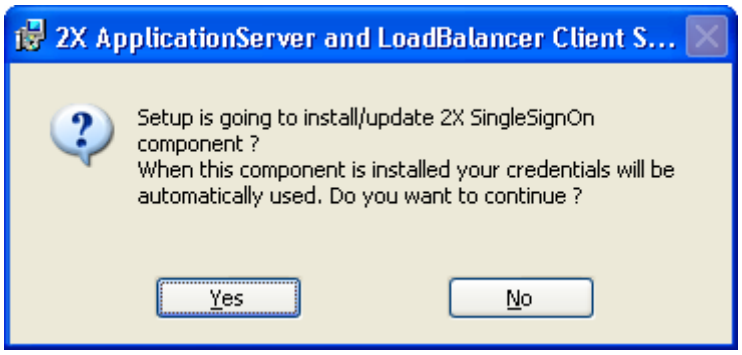
2X ApplicationServer and LoadBalancer Client S...
Setup is going to install/update 2X SingleSignOn component ?
When this component is installed your credentials will be automatically used. Do you want to continue ?
Yes
No

Figure 101 - Installing Single Sign-On

6. Setup will copy the required files. After finishing you will see the status screen.

2X ApplicationServer and LoadBalancer Client Setup
Completed the 2X ApplicationServer and LoadBalancer Client Setup Wizard
Click the Finish button to exit the Setup Wizard.
Go Thin, Go 2X
Back
Finish
Cancel

Figure 102 – Post-Installation status screen.

Installing the 2X ApplicationServer Client silently

By using the MSI format, administrators can now deploy the 2X ApplicationServer & LoadBalancer client remotely by using Group Policies or any other deployment tool that accepts the MSI format. This greatly simplifies the amount of work to install the 2X ApplicationServer & LoadBalancer client on all remote computers and reduces the chances of user error during the installation process.

The MSI can be deployed in many different ways (Group Policies, SMS, Altiris and even a simple login script). It is not the scope of this administration guide to cover every single option available. Make sure you consult your application manual for more information about deploying MSI packages remotely.

Using Active Directory

There are two different ways that you can deploy an application through the Active Directory. You can either publish the application or you can assign the application. You can only publish applications to users, but you can assign applications to either users or to computers. The application is deployed in a different manner depending on which of these methods you use. In this case we do recommend administrators assigning the application to COMPUTERS. The main reason for that is in this case the application is actually installed the next time the computer reboots. When assigning to users, the application is not installed until the user actually clicks on the icons created for the application.

To assign an application to certain computers simply do the following on your Active Directory:

1. Open the Group Policy Editor.
2. To assign an application to a computer, navigate through the group policy console to Computer Configuration | Software Settings | Software Installation. Now, right click on the Software Installation container and select the New | Package commands from the shortcut menu. Select the appropriate MSI file and click Open. You are now asked whether you want to publish or assign the application. Select assign and click OK.

NOTE: When doing a silent installation, the MSI can be deployed using the following syntax (one single line):

msiexec /qn /i 2XAppServer-LoadBalancer-Client.msi SERVER=”X.X.X.X” BACKUPSERVER=”X.X.X.X” SERVERPORT=Y COLORDEPTH=COLORS USERNAME="username" CLEARPASSWORD="UserPassword" DOMAIN="YourDomainName"

Detailed explanation of 2X ApplicationServer & LoadBalancer Client options

General Settings

AUTOHIDE: Hide Launcher when application is launched

- **0** – Auto hide is disabled
- **1** - Auto hide is enabled

ALWAYSONTOP: 2X ApplicationServer & LoadBalancer Client behavior to stay on top of other applications.

- **0** – Always on top behavior is disabled
- **1** – Always on top behavior is enabled

AUTOLAUNCH: Launch automatically at Windows startup

- **0** – Disable auto launch
- **1** – enable auto launch

CHECKUPDATELAUNCH: To enable or disable the checking of updates of client on launch.

- 0 – Do Not Check for updates on startup
- 1 – Check for updates on startup

UPDATECLIENTXML: The URL which contains information about the latest 2X ApplicationServer client.

VIEWMODE: The mode in which to view the listed applications.

- **0** – Icons View
- **1** – Tile View
- **2** – List View
- **3** – Tile List View
- **4 –** Details View

DNSLBENABLED: To enable DNS load balancing if the 2X Client Gateway specified on the client has more than one IP assigned for the same host.

For example in such a case where the host name 'roundrobinhost.company' is configured with the following IP addresses '192.168.0.5; 192.168.0.6; 192.168.0.7', the 2X Client will use a different IP each time it makes a new connection if this option is enabled.

- **0** – Disabled
- **1** – Enabled

CONNTIMEOUT: The amount of time before the client time out the connection if a connection is not successful. The default setting is 20 seconds and the option can be increased for connections with high latency.

SSLNOWARNING: Do not warn if server certificate is not verified.

- **0** – Display warning message
- **1** – Do not display warning message

IGNORERESCHECK: Option to ignore the resolution check.

- **0** – Disabled
- **1** – Enabled

DISABLEOPTIONS: To disable the Options button and hide the options to configure the client settings. This option can be applied to users without administrative rights.

- **0** – Options are enabled
- **1** – Options are disabled

DISABLEOPTIONSADMIN: To disable the Options button and hide the options to configure the client settings. This option can be applied to users with administrative rights.

DISABLESAVEPASSWORDADMIN: To disable the clients from saving the password even if they have administrative rights.

- **0 –** Option to save password is enabled
- **1** – Option to save Password is disabled

DISABLESAVEPASSWORD: To disable the clients from saving the password. This option is ignored with users with administrative rights.

- **0 –** Option to save password is enabled
- **1** – Option to save Password is disabled

SHOWFOLDERS: Show Folders page.

- **0** – Do not show Folders page
- **1** – Show Folders page

ALLOWRECONNECT: Enable the client to reconnect automatically to a session in the event of a network error.

- **0** – Disable automatic reconnection
- **1** – Enable automatic reconnection

SPANDESKTOPS: Span Published desktops on all monitors.

- **0** – Do not span desktops on all monitors
- **1** – Span desktops on all monitors

LANGUAGE: Specify the language.

- **0** – Default Language
- **1** – English
- **2** – German
- **3** – Japanese
- **4 –** Russian

DONTPROMPTAUTOADDFARM: Don't Show prompt message when adding auto farms.

- **0** – Show prompt messages
- **1** – Do not show prompt messages

AUTOADDFARM: Add farm automatically when starting web or shortcut items.

- **0** – Do not add farm automatically
- **1** – Add farm automatically

MINIMIZETOTRAYONCLOSE: Minimize to tray on close or escape.

- **0** – Do not add farm automatically
- **1** – Add farm automatically

AUTOREFRESHFARMS: Option to automatically refresh the farms listed in the client.

- **0** – Do not automatically refresh farms
- **1** – Automatically refresh farms

AUTOREFRESHTIMER: The time taken to refresh the farms if the 'AUTOREFRESHFARMS' is enabled. The time should be specified in minutes and default value is 60 minutes.

SMARTSIZING: Enable desktop smart sizing.

- **0** – Disable Smart Sizing
- **1** – Enable Smart Sizing

Farm Settings

CONNECTIONMODE: Connection Mode Settings.

- **0** - Regular Gateway
- **1** - Direct Mode
- **2** - SSL Mode

SERVERPORT: TCP port number in use for the 2X ApplicationServer application list retrieval. You must enter the number in use. E.g. 80.

SAVEPASSWORD: To save password in the logon options

- **0** – Do not save Password
- **1** – Save Password

ENABLEAUTOLOGON:

- **0** – Auto Logon disabled
- **1** – Auto Logon enabled

SSO: To enable Single Sign-On

- **0** – Do not use System Credentials (SSO)
- **1** – Use System Credentials (SSO)

SERVER: IP address or name of the 2X ApplicationServer & LoadBalancer [the location of 2X client Gateway Service].

BACKUPSERVER: IP address or name of a secondary 2X ApplicationServer & LoadBalancer. (2X Client Gateway Service).

USERNAME2X: The username to be used when logging in to your terminal servers and the username to retrieve the list of applications.

DOMAIN: The domain name used for authentication.

COLORDEPTH: The number of color bits to be used.

- **0** - 256 colors
- **1** - High Color 15bit
- **2** - High Color 16bit
- **3** - True Color 24bit

USECLIENTCOLORS: Use client system colors.

- **0 -** Do Not Redirect Client Colors
- **1 -** Redirect Client Colors

USECLIENTSETTINGS: Use client system settings (border size, fonts, etc).

- **0** – Do not redirect system settings
- **1** – Redirect Client System settings

CREATESHORTCUTS: Create shortcuts configured on server

- 0 – Do not create shortcuts configured on server
- 1 – Create shortcuts configured on server

REGISTEREXT: Register file extensions associated form the server

- **0** – Disable registration of file extensions associated from the server
- **1** – Enable registration of file extensions associated from the server

URLREDIRECTION: Redirect URLs to client

- 0 – Do not redirect URL to clients
- 1 – Redirect URL to clients

MAILREDIRECTION: Redirect MAIL to client

- 0 – Do not redirect MAIL to clients
- 1 – Redirect MAIL to clients

CLEARPASSWORD: Clear password for the user. When the client is launched for the first time, the password will be encrypted and saved.

OVERRIDEUSERSETTINGS: To override the user settings with client MSI settings.

- 0 – Client settings are not overridden
- 1 – Client settings are overridden with the new settings of the Client MSI setup.

General Settings – 2X Universal Printing Options

PRINTFORMAT: Format of printing data.

- **0 -** PDF
- **1** – EMF
- **2** – BMP

PRINTOPTION: Default client settings on client for 2X Universal Printing.

- **0 -** Print to default printer
- **1** – Select printer before printing
- **2** – Use printer specified in the 'PRINTERNAME' field
- **3** – View document to print

PRINTERNAME: String value of the default printer to be used

Farm Settings – Local Resources

KEYBOARD: Where to apply key combinations.

- **0** – On the local Computer
- **1** – On the remote Computer
- **2** – In full screen mode only

AUDIOMODE: Options for Remote computer sound.

- **0** - Bring to this computer
- **1** - Do not play
- **2** - Leave at remote computer

REDIRECTCOMPORTS: To redirect local serial ports on to the remote computer.

- **0** – Redirect Serial Ports OFF
- **1** – Redirect Serial Ports ON

REDIRECTDRIVES: To redirect local disk drives on to the remote computer.

- **0** – Redirect drivers OFF
- **1** – Redirect drivers ON

REDIRECTPRINTERS: To redirect local printers on to the remote computer.

- **0** – Printer redirection OFF
- **1** – Printer redirection ON

REDIRECTSMARTCARDS: To redirect smart cards on to the remote computer

- **0** – Smart Card redirection OFF
- **1** – Smart Card redirection ON

Farm Settings – Experience

EXP_DESKTOPBG: Desktop background

- **0** – Disable
- **1** – Enable

EXP_FONTSMOOTHING: Font smoothing

- **0** – Disable
- **1** – Enable

EXP_WINDOWMENUANIMATION: Menu and window animation

- **0** – Disable
- **1** – Enable

EXP_DESKTOPCOMPOSITION: Desktop composition

- **0** – Disable
- **1** – Enable

EXP_SHOWCONTENT: Show contents of windows while dragging

- **0** – Disable
- **1** – Enable

EXP_THEMES: Themes

- **0** – Disable
- **1** – Enable

EXP_BMPCACHING: Bitmap caching

- **0** – Disable
- **1** – Enable

NOTE: If using Group Policies to deploy the 2X ApplicationServer client, you will need to edit the MSI in order to pre-configure some of the settings you may want to change like the server IP address and port. To do this we recommend using Microsoft ORCA, a free utility that is part of the Windows Platform SDK. Alternatively you can download it from http://astebner.sts.winisp.net/Tools/Orca.zip.

Using ORCA to change the MSI

After downloading and installing ORCA, all you need to do is launch ORCA and open the '**2XAppServer-LoadBalancer-Client.msi**' package.

Once you open the MSI package, on the LEFT hand side (**Tables** column) you will see 'Property'. Click on it.

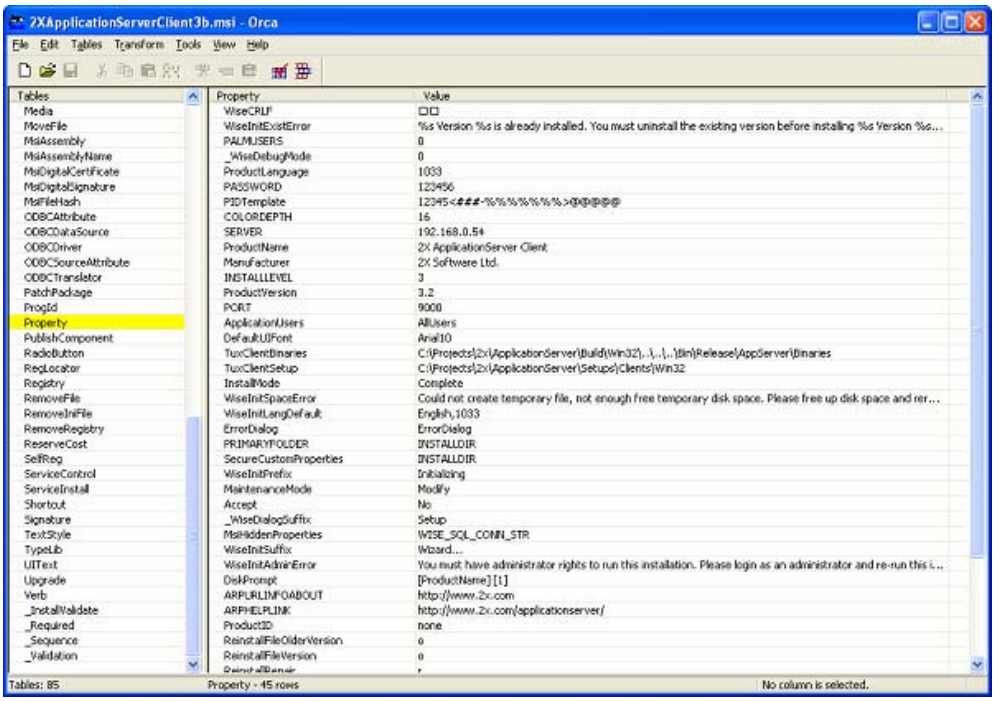

Figure 103 – Using ORCA to open the MSI package.

Some of the properties (like SERVERPORT for example) may be already available in the MSI package. If a certain property is not available, simply click on 'Tables' | 'Add Row…'.

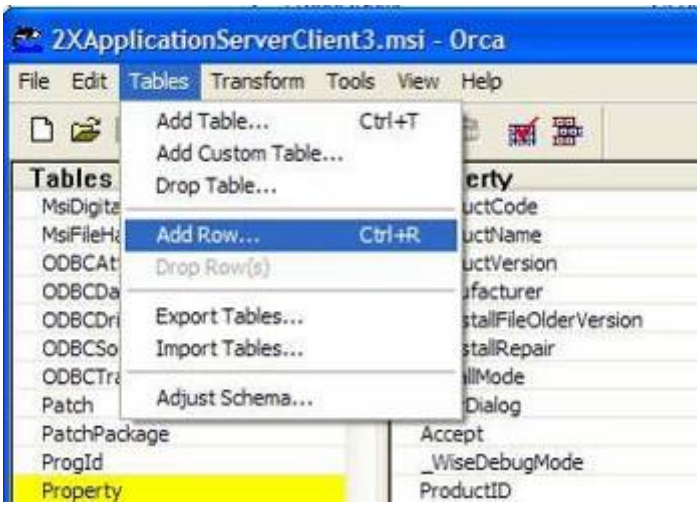

Figure 104 – Adding a new row.

Now click on ‘Property’ and type in the name of the property you want to add. After adding the property, click on ‘Value’ and type the value you want. Make sure you enter the right property name and its value. Once you finish click **Ok.**

The properties you can change/add for the 2X ApplicationServer & LoadBalancer Client are

ALWAYSONTOP; AUDIOMODE; AUTOHIDE; BACKUPSERVER; CHECKUPDATELAUNCH; CLEARPASSWORD; COLORDEPTH; DOMAIN; DISABLEOPTIONS; DISABLESAVEPASSWORD; ENABLEAUTOLOGON; KEYBOARD; MODE; OVERRIDEUSERSETTINGS; REDIRECTCOMPORTS; REDIRECTDRIVES; REDIRECTPRINTERS; SAVEPASSWORD; SERVER; SERVERPORT; SSLNOWARNING; USECLIENTCOLORS; USELCIENTSETTINGS; UPDATECLIENTXML; USERNAME2X (all explained above). Note these properties are case sensitive.

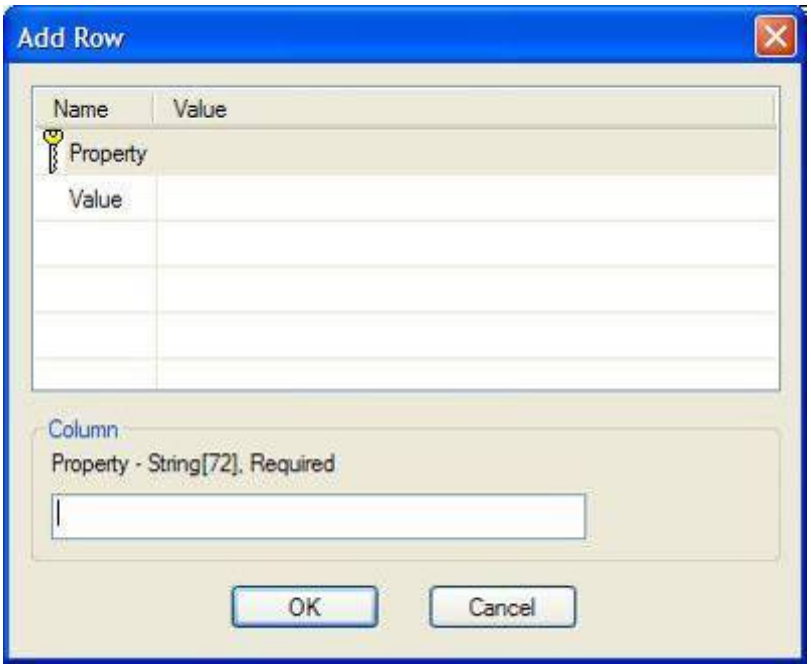

Figure 105 – Adding a new property/value.

After adding all the properties you want simply go to File | Save As… and type a new name for your customized MSI file. This file can now be used with Active Directory to perform a completely silent and automated installation.

NOTE: Make sure that you enable “Copy embedded streams during ‘Save As’” in Orca Database Options.

USING 2X APPLICATIONSERVER & LOADBALANCER CLIENT FOR WINDOWS

Introduction

After you have installed the 2X ApplicationServer & LoadBalancer Client, you can now launch the 2X ApplicationServer & LoadBalancer Client to access your published applications.

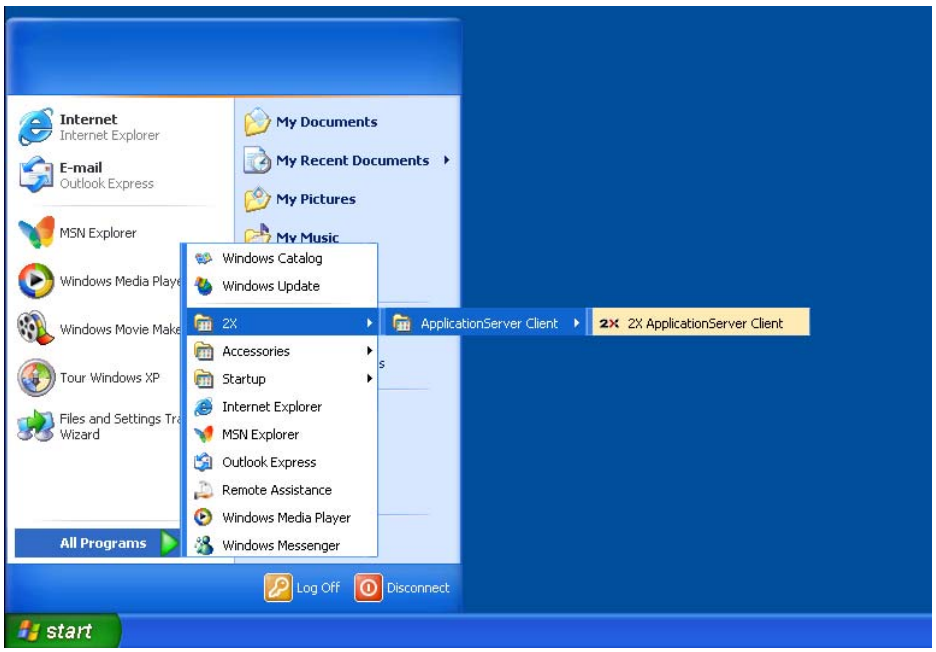

Figure 106 – Launching the 2X ApplicationServer & LoadBalancer Client

To open the 2X ApplicationServer & LoadBalancer Client:

1. Start > [All] Programs > 2X > ApplicationServer Client > 2X ApplicationServer Client

Configuring 2X ApplicationServer & LoadBalancer Client

After you launch the 2X ApplicationServer & LoadBalancer Client you will see its initial screen:

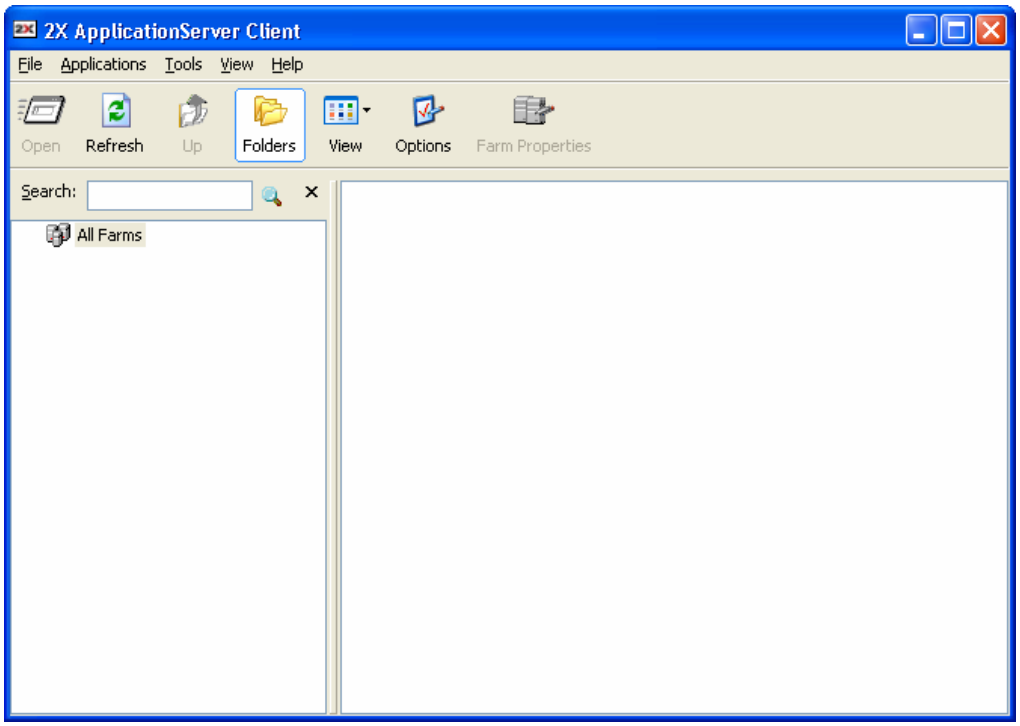

Figure 107– 2X ApplicationServer Client Initial Screen.

2X ApplicationServer Client for windows is able to connect with multiple farms where farms is a common term used in remote session computing to refer to a group of Terminal Servers. A 2X Farm consists of a 2X Publishing Agent joined with one or more 2X Terminal Server Agents.

One or more 2X Client Gateway can be used to expose the 2X farm. To add a new farm in the 2X Client, one should use the hostname or IP where the 2X Client Gateway Service is installed.

Farms

The first thing you must do is to add a new farm, by clicking ‘File’ and select ‘Add New Farm…’ or right click on ‘All Farms’ and click ‘Add New Farm…’.

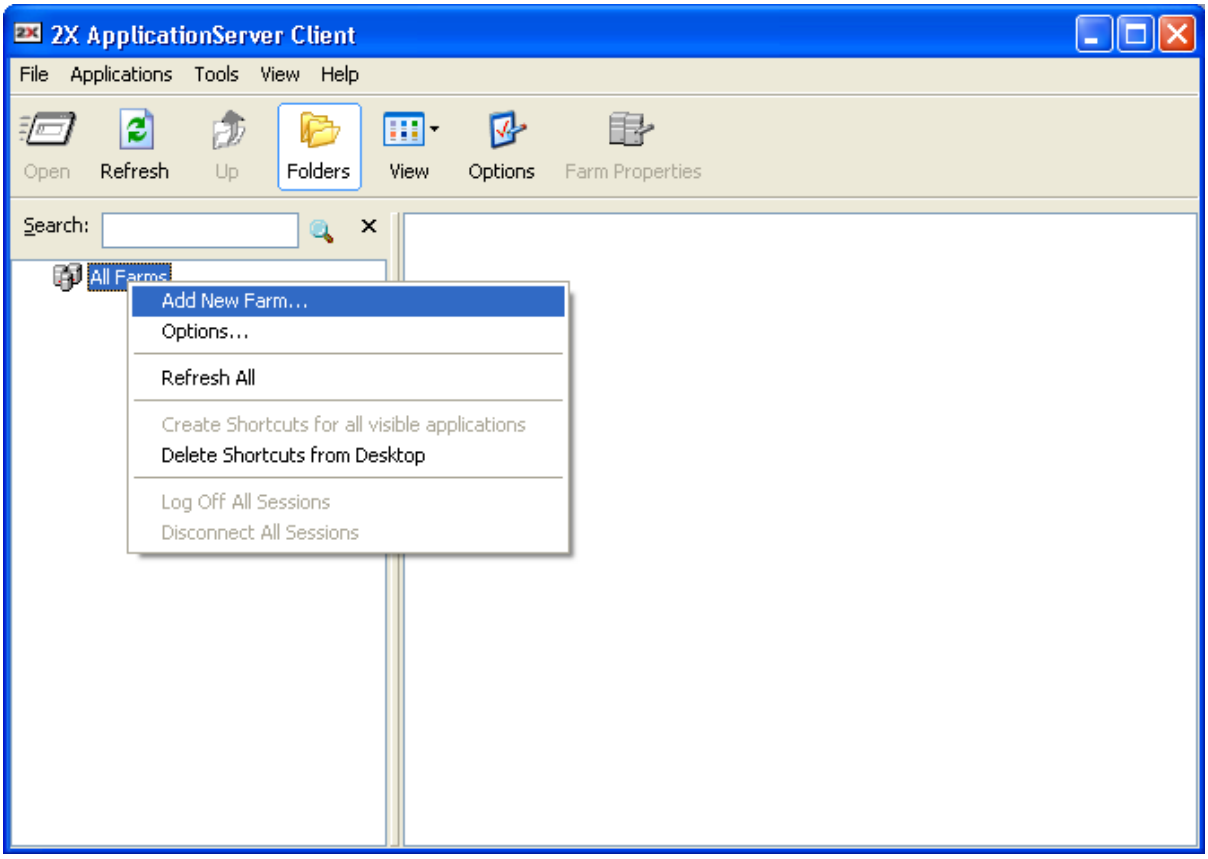

Figure 108 – 2X ApplicationServer Client – Add New Farm.

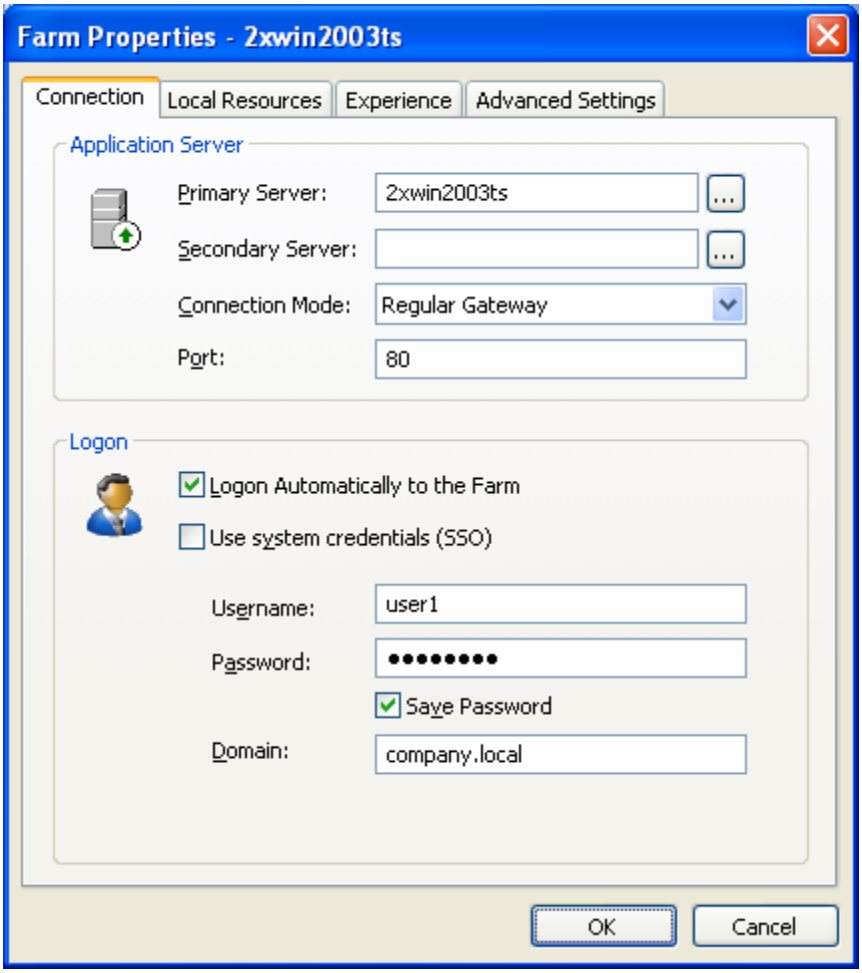

Figure 109 – 2X ApplicationServer Client – Farm Properties – Connection tab.

Application Server

In the Application Server area, type the Primary Server name or IP. This should be the name or IP where the 2X Client Gateway resides.

If your administrator enabled 'Broadcast 2X Client Gateway Address' option on the server, you can click on the browse button '…' and you should see the available farm/s available in your area. If you do not see any farms, simply ask your administrator for the application server IP and port and add this information manually. You can also add a Secondary Server, in case that a backup 2X Client Gateway is available.

The client may choose the connection mode and has three ways to connect.

In **Regular Gateway** mode the clients are connected with the 2X Client Gateway and another connection is made between the 2X Client Gateway and the Terminal Servers.

In **Direct mode** connection the clients first ask the 2X LoadBalancer for the best available Terminal Server and then connect directly with the Terminal Server.

In **SSL mode**, the connection is done as in the regular gateway mode but the connection is encrypted.

NOTE: In order to connect through the 2X Client Gateway you just need to set the Port number that was configured on the Client Gateway Port in the Connection Settings Page. (Default Gateway Port 80)

Logon

Enable '**Logon automatically to the Farm'** to enable the 2X Client connect automatically instead of displaying the logon page every time you need to access the farm.

Use System Credentials (SSO) – To use the local current system credentials when connecting with that particular farm enable 'Use System Credentials (SSO). When you enable this option, you'll automatically automate the log-in process when connecting with the 2X Client Gateway and the Terminal Servers. Please note that you need to choose to install this module while installing the 2X ApplicationServer Client to be able to use the SSO.

On the 'Logon' section, enter your username, password and domain to be used when retrieving your published applications. This information is saved, encrypted, locally under the HKCU hive.

Local Resources

In case you want to configure how local resources are handled by the terminal server, simply click on the 'Local Resources' tab and select the options you want (these are the same options available with the regular Microsoft RDP Client).

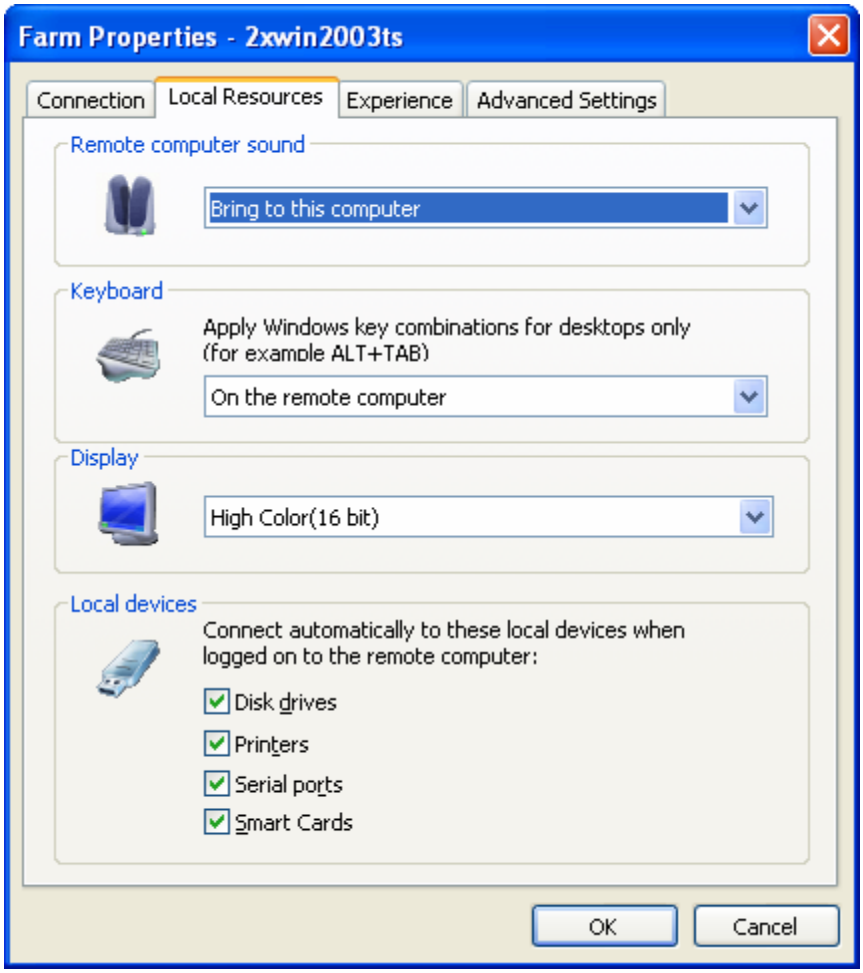

Figure 110 – 2X ApplicationServer Client – Farm Properties – Local Resources tab.

Experience

The experience tab allows you to tweak the connection speed to optimize the performance of the connection with the remote host.

If you are using a connection to a remote computer in a local network that runs at 100mbit or up, it is usually safe to have all of the experience options turned on.

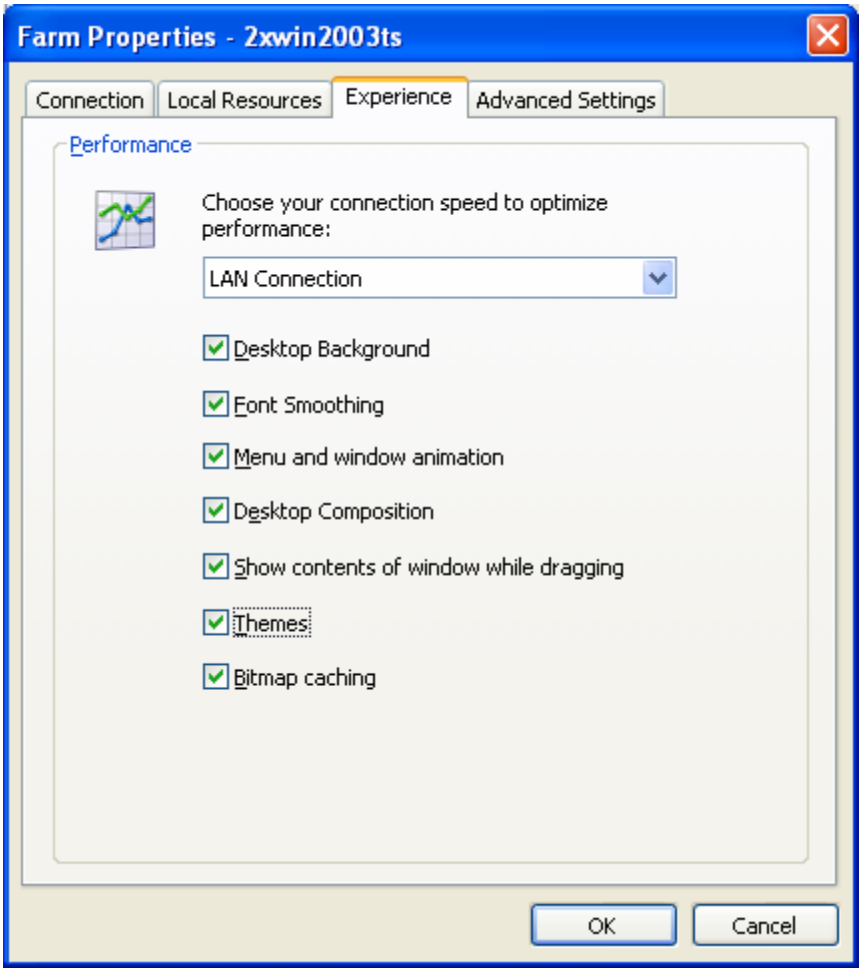

Figure 111 – 2X ApplicationServer Client – Farm Properties – Experience tab.

Advanced Settings

Use Client System Colors - Enable this option to use the client system Colors instead those specified on the Terminal Server.

Use Client System Settings – Enable this option to use the client system settings instead those specified on the Terminal Server.

Create shortcuts configured on server – For each published application, the administrator can configure shortcuts on the clients desktop and start menu folder. With this option one can choose to have or not to have these shortcuts.

Register file extensions associated form the server – For each published application, the administrator can associate certain file extensions. With this option the client can choose to register or not these file extensions.

Redirect Mail to client – Enable this option to use the local mail client when opening '**mailto:**' links.

Redirect URLs to client - Enable this option to use the local web browser when opening '**http:**' links.

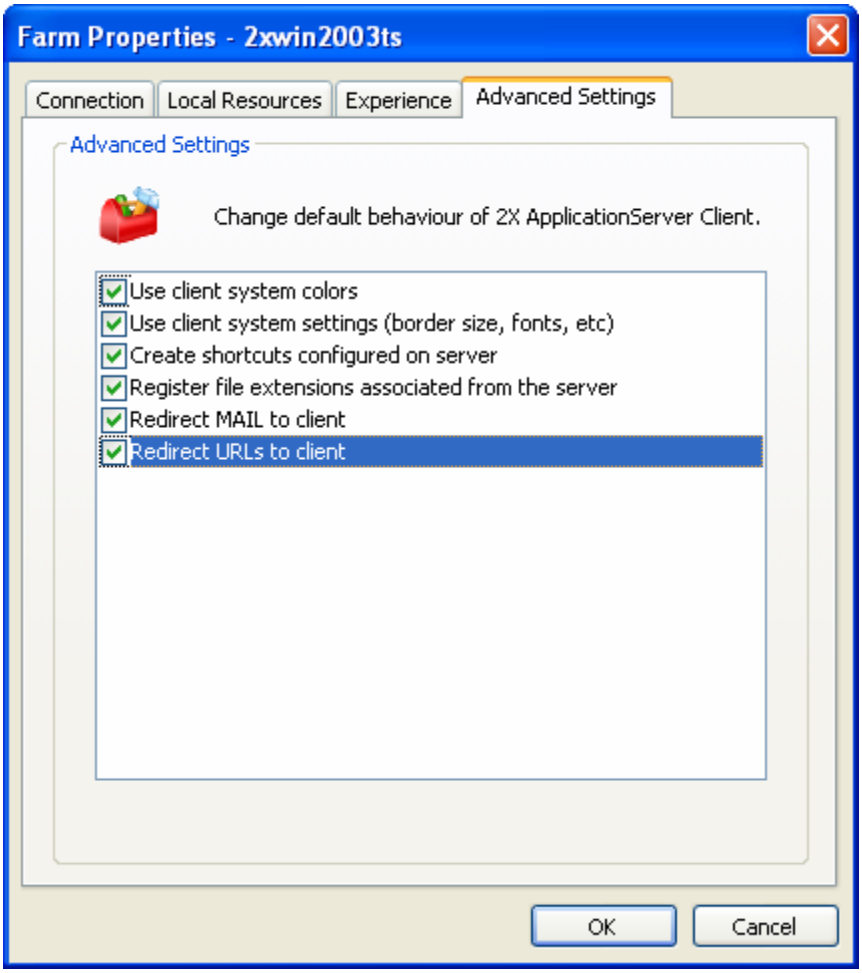

Figure 112 - Farm Properties – Advanced Settings

2X Universal Printing

To use the 2X Universal Printing, the clients will just have to have to click Print while using the published application on the Terminal Server and select '2X Universal PDF Printer'.

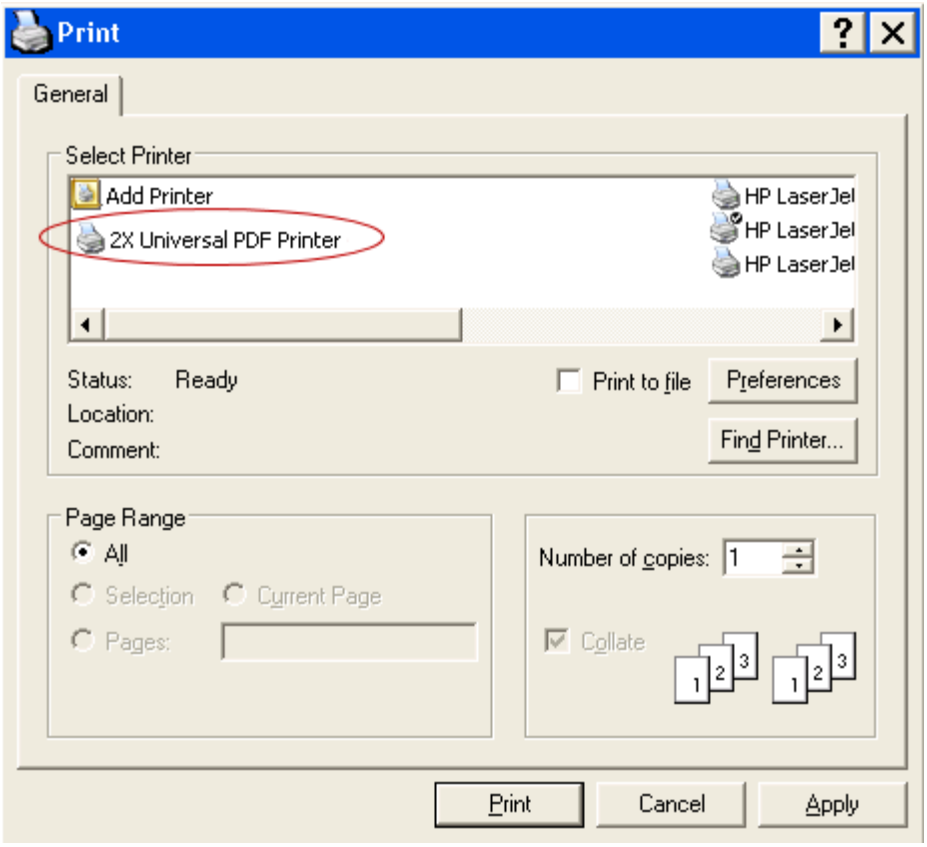

Figure 113 - Printing in a Terminal Server session using 2X Universal Printing

In the 2X Universal Printing tab the client can configure to choose:

Print to default printer – Use the default printer on the client side.

Select printer before printing – Open the dialog to choose the printer before printing.

Use the following printer – Click on '**…**' to select the printer and always use the selected printer when printing through the 2X Universal PDF Printer.

View document to print – Use this option to view the printed document using the default PDF viewer instead of printing.

Options

In the Options Area one can select to choose the data format output. The options are Portable Document Format (PDF), Enhanced Meta File (EMF) and Bitmap (BMP).

- PDF - Use vector format and embedded fonts.
- EMF - Use vector format and does not embed fonts but use the system fonts found on the client.
- BMP - Bitmap images.

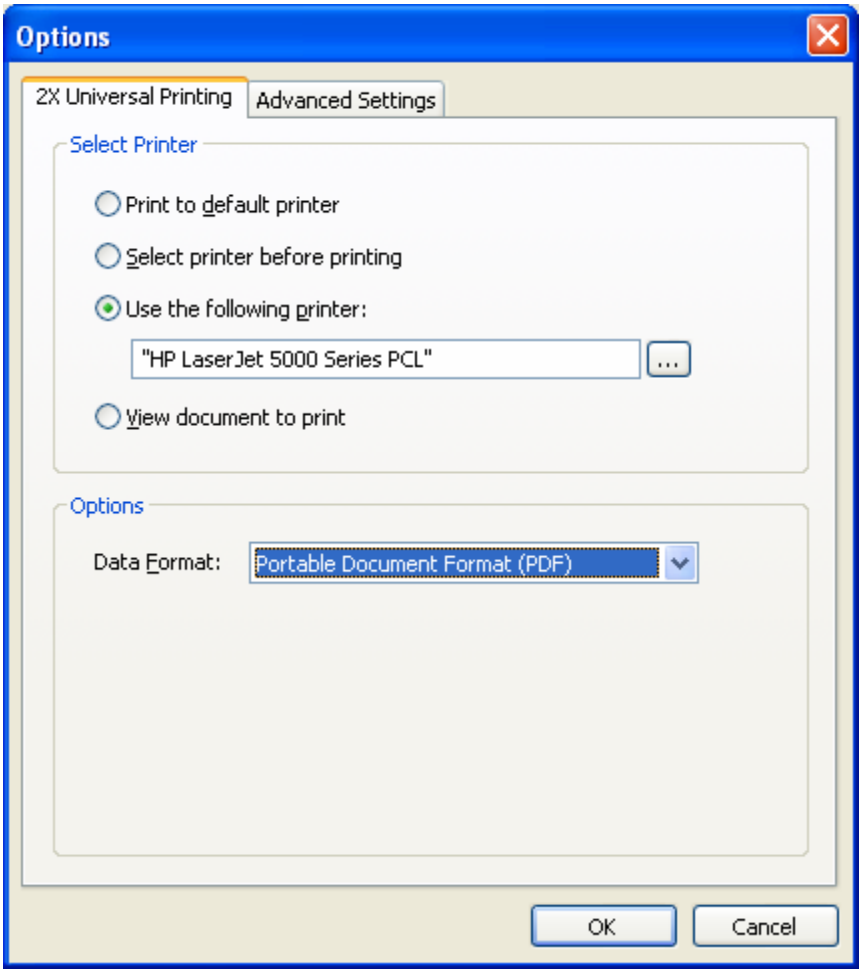

Figure 114 - 2X ApplicationServer Client – Options – 2X Universal Printing tab

Advanced Settings

In the Advanced Settings tab, you may configure the default behavior of 2X ApplicationServer & LoadBalancer Client.

Hide Launcher when application is launched is enabled - If this option is enabled, the launcher will get minimized in the system tray after an application is launched.

Always on Top - To enable 'Always on Top' feature, highlight the 'Always on Top' checkbox. With this feature enabled other applications will no longer mask the launcher.

Do not warn if server certificate is not verified – When connected over SSL, and the certificate is not verified a warning message will be displayed. One can disable this warning message by enabling this option.

Show folders page – To show the folders page in the 2x client enable this option. This will show the available folders while showing the hierarchy of the application groups as configured on the server.

Minimize to tray on close or escape – Enable this feature to place the 2X ApplicationServer Client to the System Tray when click on the close button or hit escape.

Enable the client to reconnect automatically to a session in the event of a network failure – To reconnect automatically in the event of a network failure enable this option.

Launch automatically at windows startup – This option will place a shortcut in the start menu folder of the client and the 2X client will launch automatically with the windows startup.

Span Desktops on all monitors – Enable this option to span the published desktops across al connected monitors.

Add Farm automatically when starting web or shortcuts items – This option will add the preferences of the farm in the 2X Client when starting an item contained in a farm that is not yet listed.

Don't show prompt message for auto add farms – Enable this option to disable prompt messages when adding auto farms.

Auto Refresh Farms – Enable this option to auto refresh each farm; hence check continuously that each farm is still alive.

Enable Desktop smart sizing – Desktop smart sizing enables the clients to scale the client window display of desktop when resizing.

Check for updates on startup – This option is available only with administrative rights. On the startup of the 2X client, it will check for any available updates of the client.

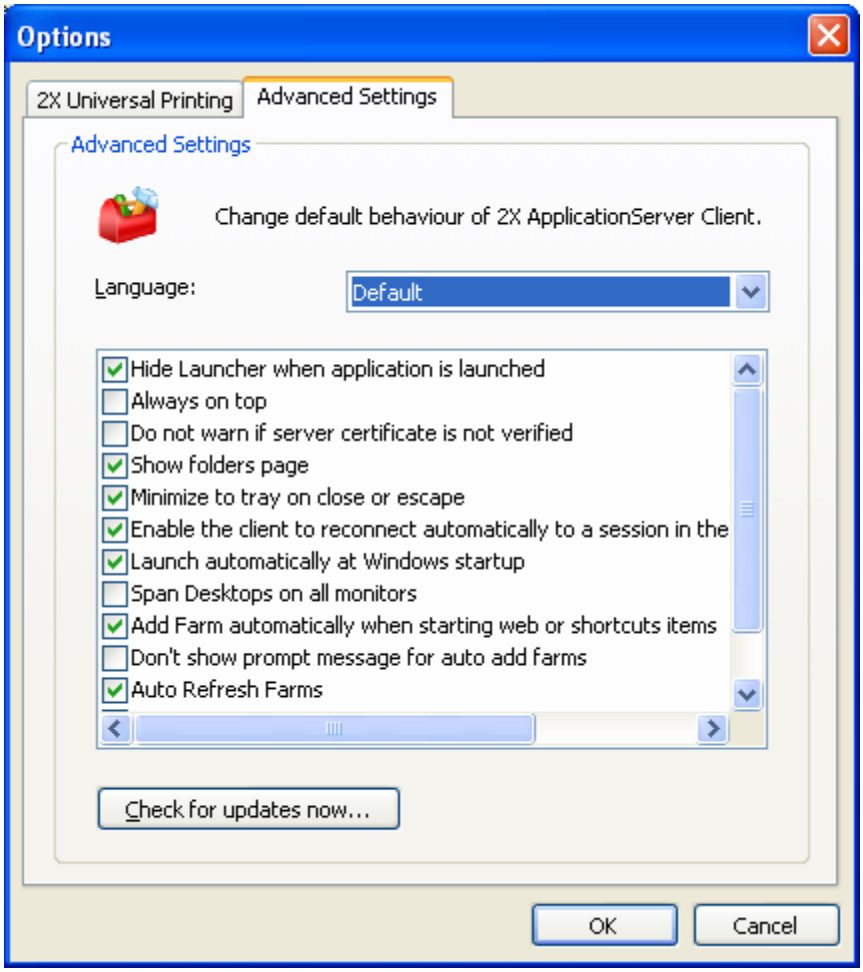
Options
2X Universal Printing
Advanced Settings
Advanced Settings
Change default behaviour of 2X ApplicationServer Client.
Language:
Default
Hide Launcher when application is launched
Always on top
Do not warn if server certificate is not verified
Show folders page
Minimize to tray on close or escape
Enable the client to reconnect automatically to a session in the
Launch automatically at Windows startup
Span Desktops on all monitors
Add Farm automatically when starting web or shortcuts items
Don't show prompt message for auto add farms
Auto Refresh Farms
Check for updates now...
OK
Cancel

Figure 115 – 2X ApplicationServer Client – Options – Advanced Settings tab.

In the Advanced Settings tab click '**Check for updates now …**' to check if there are any available updates for 2X client. If there are updates available one can click '**Update**' which will download the latest setup and install the client or click '**Download**' which will download the latest setup to a specified location.

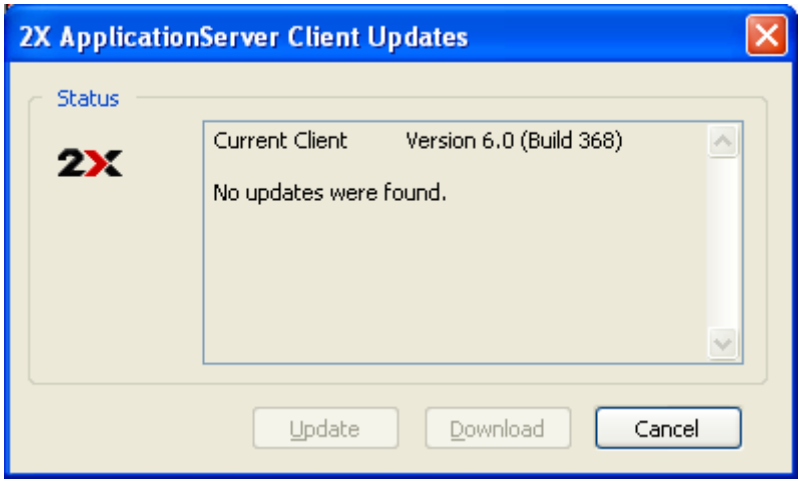

Figure 116 - 2X ApplicationServer & LoadBalancer Client updates

Listing of Published Applications

After configuring the 2X ApplicationServer & LoadBalancer client simply click 'OK'. If you entered a valid username and password and the server IP address and port are correct, you should see the list of published applications available to your username/computer/IP address on the main window.

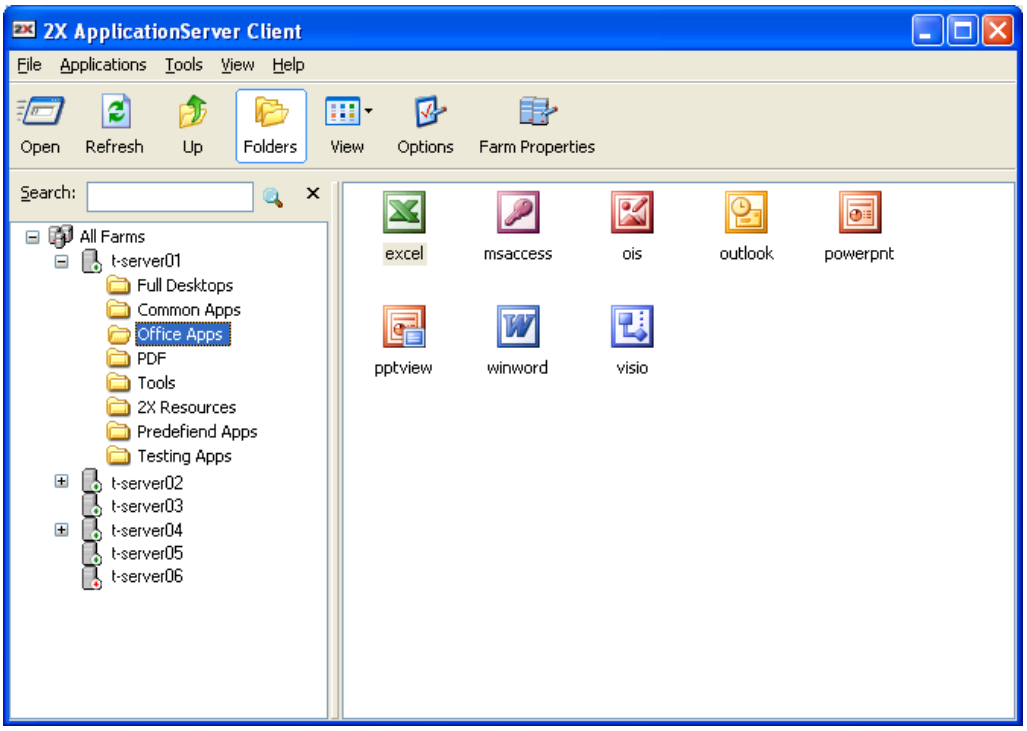

Figure 117 – 2X ApplicationServer & LoadBalancer Client main window with published applications.

If you want to create shortcuts for your published applications on your local desktop computer, simply right click an application and select 'Create shortcut'. A shortcut for that application will be placed on your desktop.

NOTE: The 2X ApplicationServer & LoadBalancer client uses the Microsoft RDP protocol when connecting to your terminal servers. This means it fully supports all the features supported by the RDP 5.2 specifications at the time of writing. In case some of these do not work as expected, try launching the regular Microsoft RDP Client and connect to your terminal servers to see if they work or not. If they work as expected but do not work when using the 2X ApplicationServer & LoadBalancer client, please contact our technical support as explained on the 'Troubleshooting' section of this manual.

2X APPLICATIONSERVER WEB PORTAL

2X ApplicationServer Web Portal allows users to launch published applications and desktops from multiple farms which are accessed through a web portal according to their filter settings.

Pre-requisites

- Windows 2003 Server
- Microsoft .NET Framework II
- IIS 6
- 2X ApplicationServer & LoadBalancer Ver. 6

Installation

1. Run the 2X ApplicationServer Web Portal setup program by double clicking on the '2XWebPortal.msi' file on an IIS machine to be used as your access point to the published applications from the Web Portal. A welcome dialog box will appear. Close other Windows programs and click 'Next'.

2X ApplicationServer Web Portal Setup
Welcome to the 2X ApplicationServer Web Portal Setup Wizard
The Setup Wizard will install 2X ApplicationServer Web Portal on your computer. Click Next to continue or Cancel to exit the Setup Wizard.
Go Thin, Go 2X
Back
Next
Cancel

Figure 118 - Welcome to the 2X ApplicationServer Web Portal Setup Wizard

2. Accept the license agreement by enabling ‘I accept the terms in the License Agreement’ checkbox.

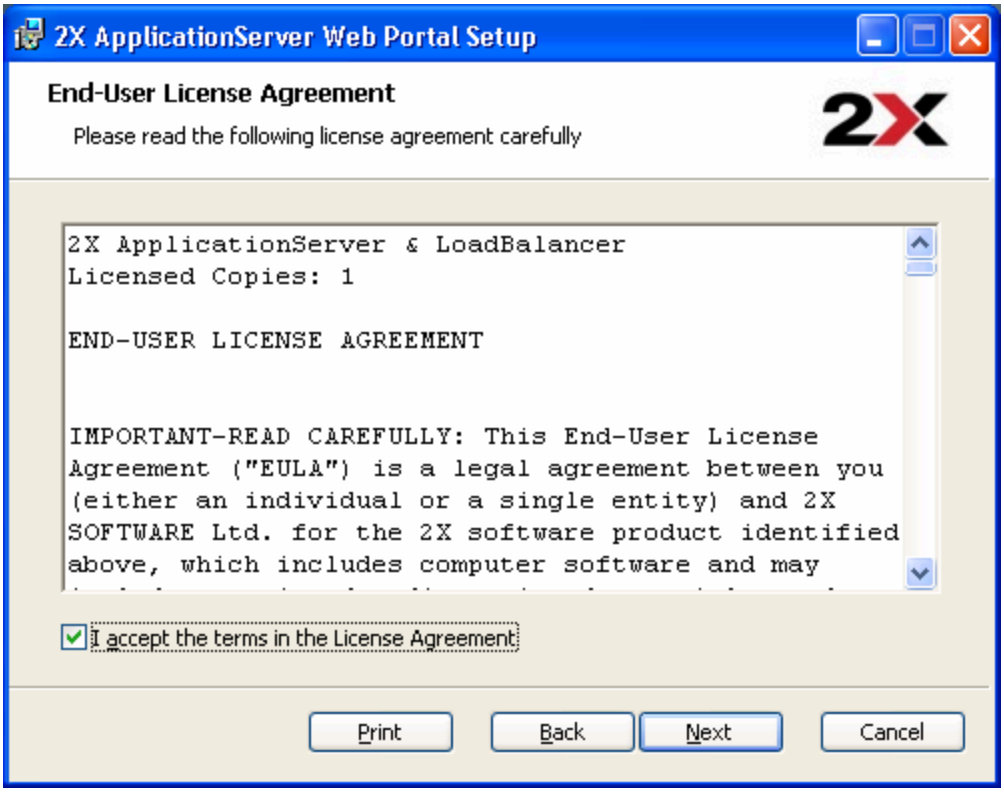
2X ApplicationServer Web Portal Setup
End-User License Agreement
Please read the following license agreement carefully
2X ApplicationServer & LoadBalancer
Licensed Copies: 1
END-USER LICENSE AGREEMENT
IMPORTANT-READ CAREFULLY: This End-User License Agreement ("EULA") is a legal agreement between you (either an individual or a single entity) and 2X SOFTWARE Ltd. for the 2X software product identified above, which includes computer software and may
I accept the terms in the License Agreement
Print
Back
Next
Cancel

Figure 119 - Web Portal End-User License Agreement

3. In this screen you're asked to assign the port on which the 2X Web Service will be installed. By default this 2X Web Portal will be installed on port 81. Please note that 2X Client Gateway by default is installed on port 80 is configured to forward the HTTP requests to localhost on port 81. Therefore the clients will still be able to access the 2X Web Portal from port 80. However one may choose to install the 2X Web Service on any other port and one may also use an existing port used by other web site. In this case the service will be installed under the web site configured on that port.

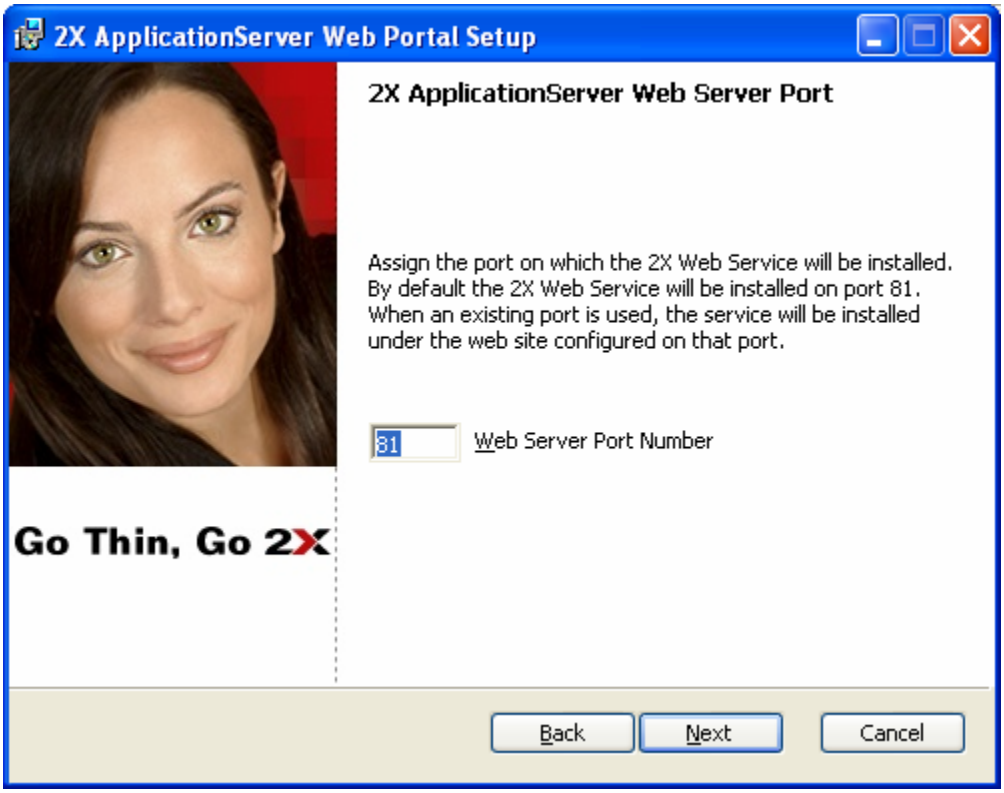
2X ApplicationServer Web Portal Setup
2X ApplicationServer Web Server Port
Assign the port on which the 2X Web Service will be installed. By default the 2X Web Service will be installed on port 81. When an existing port is used, the service will be installed under the web site configured on that port.
81
Web Server Port Number
Go Thin, Go 2X
Back
Next
Cancel

Figure 120 - Web Portal – Web Server Port Number

4. Click ‘Install’ to begin the installation - Setup will copy the required files and will create the service on the machine.

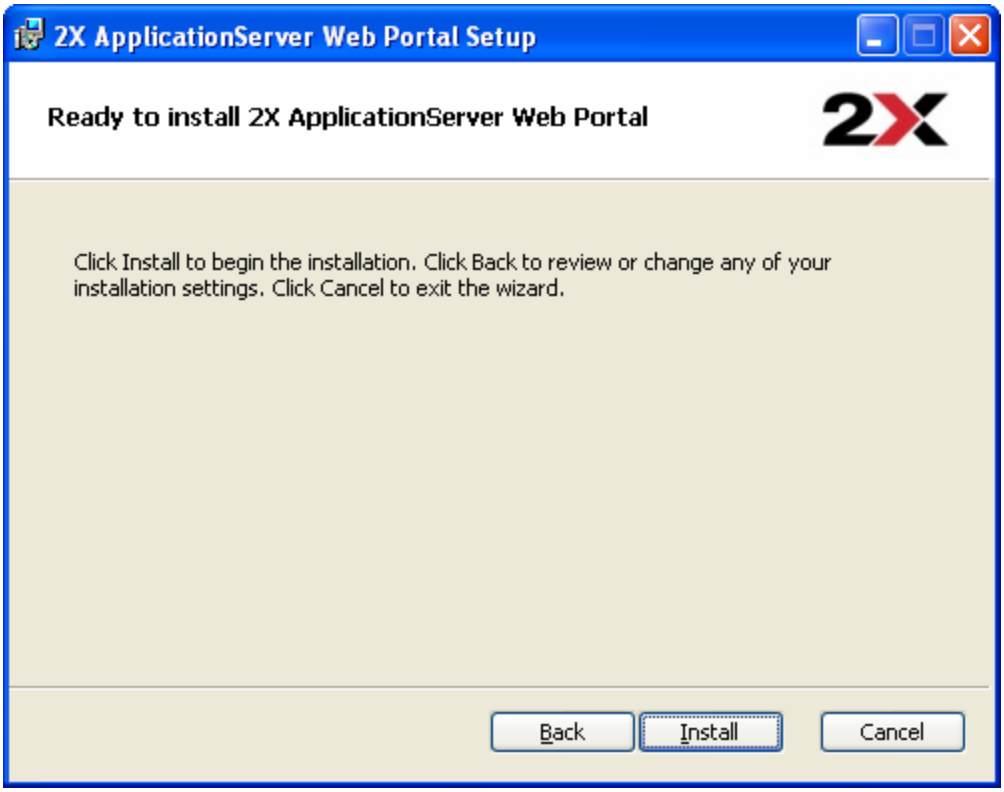
2X ApplicationServer Web Portal Setup
Ready to install 2X ApplicationServer Web Portal
2X
Click Install to begin the installation. Click Back to review or change any of your installation settings. Click Cancel to exit the wizard.
Back
Install
Cancel

Figure 121 - Web Portal - Ready to install 2X ApplicationServer & LoadBalancer

Configuration

The first step after installing the 2X Web Portal is to direct the browser to [http://localhost/2XWebPortal/Logon.aspx] and login with a username with administrative rights on the IIS machine.

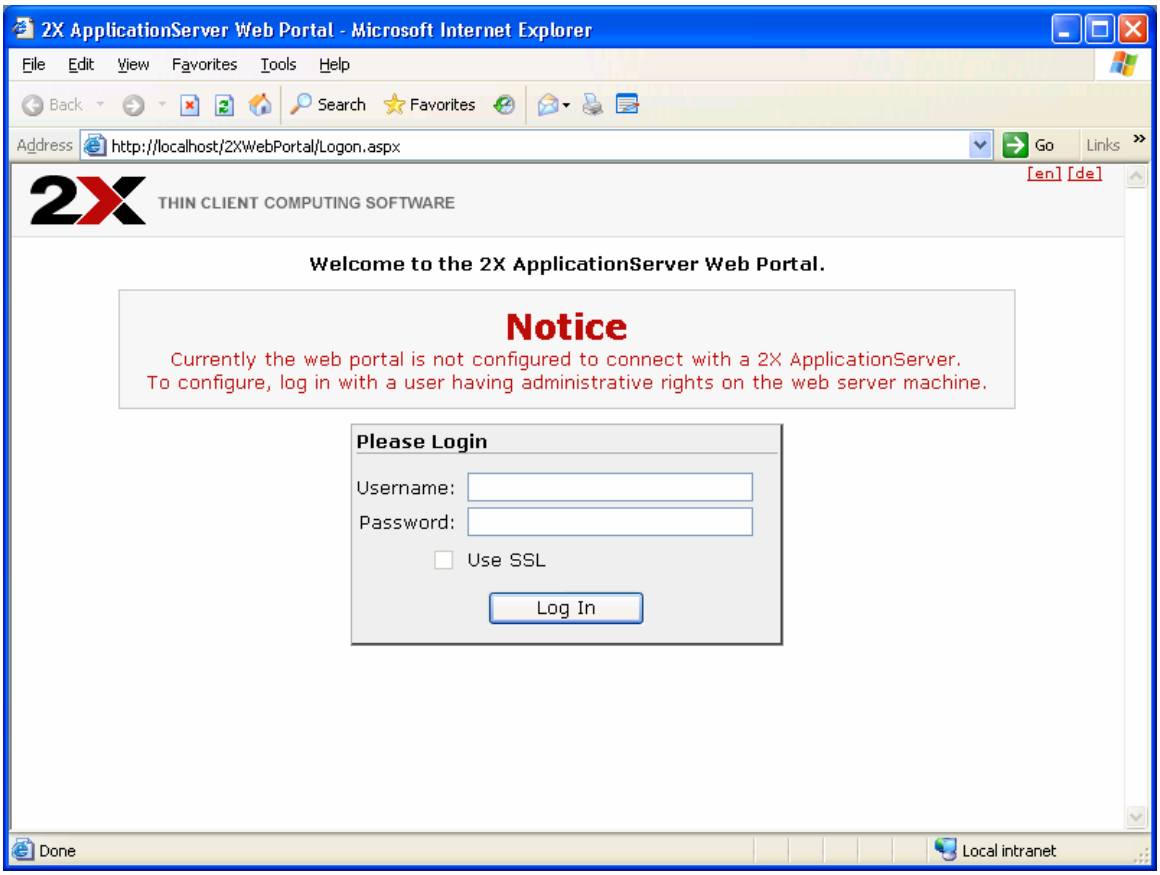
2X ApplicationServer Web Portal - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address http://localhost/2XWebPortal/Logon.aspx
Go Links
[en] [de]
THIN CLIENT COMPUTING SOFTWARE
Welcome to the 2X ApplicationServer Web Portal.
Notice
Currently the web portal is not configured to connect with a 2X ApplicationServer.
To configure, log in with a user having administrative rights on the web server machine.
Please Login
Username:
Password:
Use SSL
Log In
Done
Local intranet

Figure 122- Welcome to the 2X ApplicationServer Web Portal

Add Farm by entering the IP/hostname on the left side and click 'Add Farm'. One can configure how the 2X Web Service will connect with the 2X Client Gateway in the ‘Farm Details’.

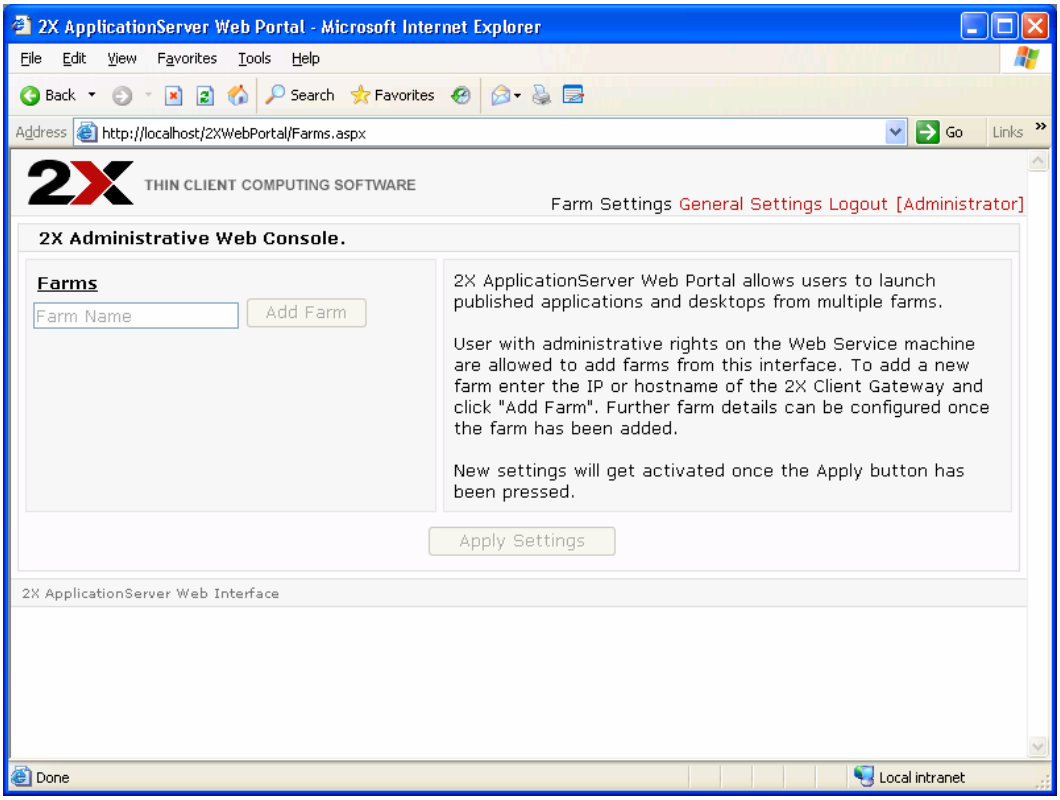
2X ApplicationServer Web Portal - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address http://localhost/2XWebPortal/Farms.aspx
Go Links
THIN CLIENT COMPUTING SOFTWARE
Farm Settings General Settings Logout [Administrator]
2X Administrative Web Console.
Farms
Farm Name
Add Farm
2X ApplicationServer Web Portal allows users to launch published applications and desktops from multiple farms.
User with administrative rights on the Web Service machine are allowed to add farms from this interface. To add a new farm enter the IP or hostname of the 2X Client Gateway and click "Add Farm". Further farm details can be configured once the farm has been added.
New settings will get activated once the Apply button has been pressed.
Apply Settings
2X ApplicationServer Web Interface
Done
Local intranet

Figure 123 - Add a new farm

In the Farm Details, the Administrator should configure the settings of the 2X Client Gateway for each farm. The 2X Client Gateway Details as shown in the figure below are used from the 2X Web Service to connect with the 2X Client Gateway. Therefore these settings are primarily used for the connection between the 2X Web Service and the 2X Client Gateway service.

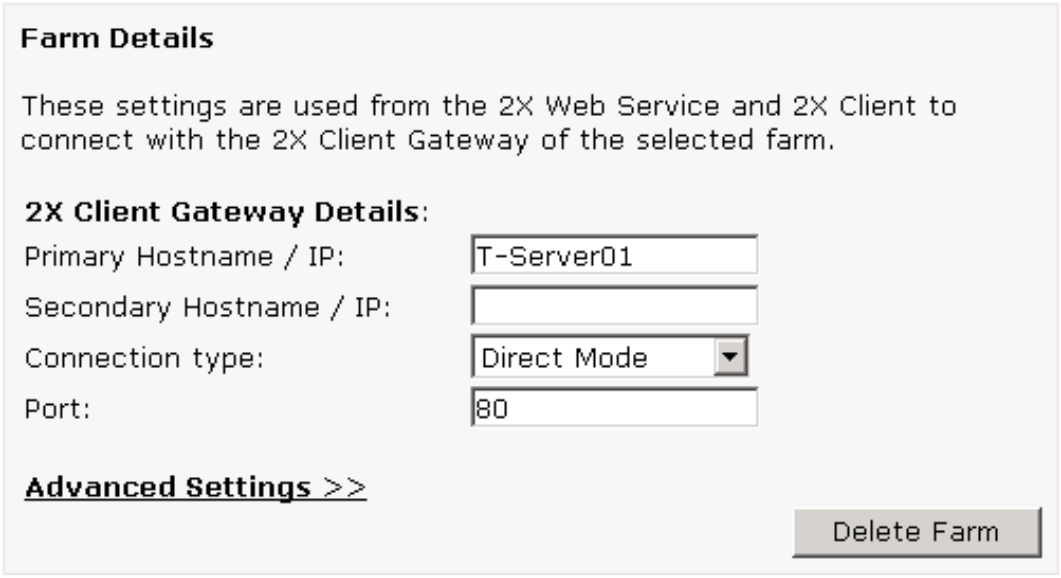
Farm Details
These settings are used from the 2X Web Service and 2X Client to connect with the 2X Client Gateway of the selected farm.
2X Client Gateway Details:
Primary Hostname / IP:
T-Server01
Secondary Hostname / IP:
Connection type:
Direct Mode
Port:
80
Advanced Settings >>
Delete Farm

Figure 124 - Configuring the Farm Details

To configure (override) the options how the client will connect with the 2X Client Gateway, click the 'Advanced Settings' options. These options allow the administrator to override the options that are used in the 2X Client Gateway Details and give the ability to use different settings when 2X clients are connected with the 2X Client Gateway.

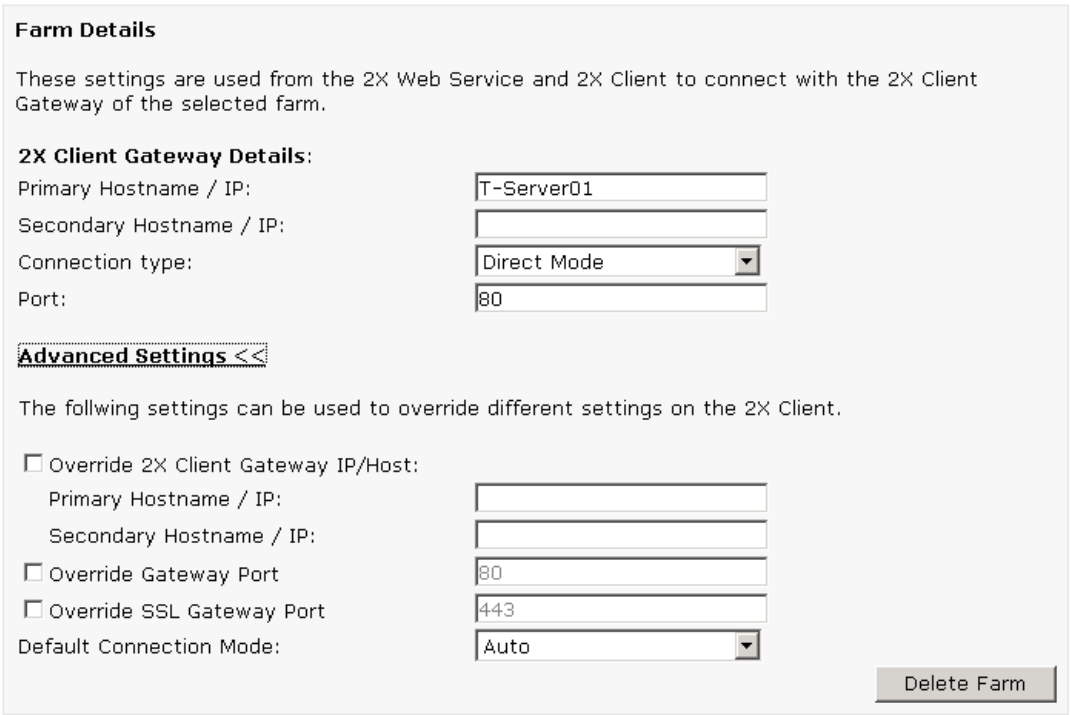
Farm Details
These settings are used from the 2X Web Service and 2X Client to connect with the 2X Client Gateway of the selected farm.
2X Client Gateway Details:
Primary Hostname / IP:
T-Server01
Secondary Hostname / IP:
Connection type:
Direct Mode
Port:
80
Advanced Settings <<
The follwing settings can be used to override different settings on the 2X Client.
Override 2X Client Gateway IP/Host:
Primary Hostname / IP:
Secondary Hostname / IP:
Override Gateway Port
80
Override SSL Gateway Port
443
Default Connection Mode:
Auto
Delete Farm

Figure 125 - Advanced Settings

After you configure the required settings, click ‘Apply Settings’ and log out and log in again to retrieve the applications listing.

2X ApplicationServer Client must be installed on the client machine beforehand and the clients browsers should be pointed to http://WEB_SERVER_NAME/2XWebPortal/Logon.aspx. After entering the user credentials in Username and Password fields, the application list should be populated according to the client filtering settings. Username in UPN suffix format should be used to specify the user and domain. (E.g. user@domain)

Clients will be able to traverse the application groups by clicking on the icon of each application group or by using the path field. Clients are also allowed to select the connection mode in order to specify the connection mode used when connecting with the published application or desktop.

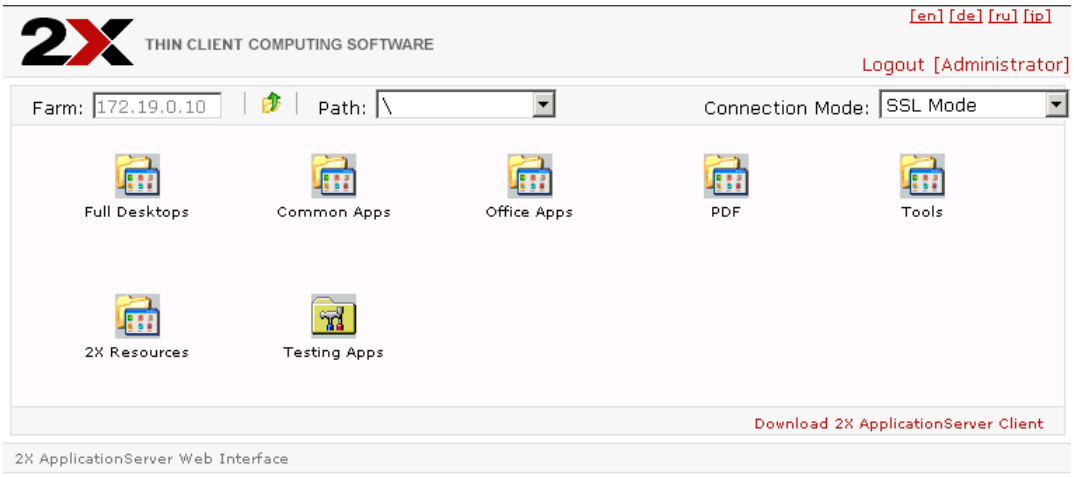

Figure 126 - Application Listing

To connect in a secure mode one should enable SSL on the 2X ApplicationServer or enable SSL on IIS.

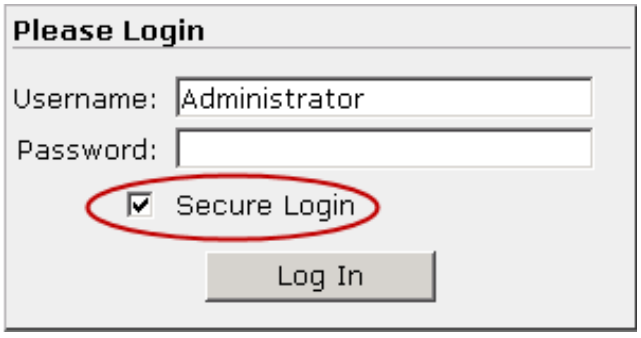

Figure 127 - Secure Login

One may add more farms by using the above steps again. Click 'Apply Settings' to activate your settings.

INSTALLING 2X APPLICATIONSERVER CLIENT FOR LINUX

Installation Procedures (RPM Version)

1. Download the rpm package from http://www.2x.com/applicationserver/downloadlinks.htm and store it locally.

2. Switch to the root user.

3. To install type:

   ```
   rpm –ivh 2xApplicationServerClient3.i386.rpm
   ```

4. 2X ApplicationServer Client for Linux binaries are now installed under:

   ```
   /opt/2X/applicationserverclient/bin
   ```

5. Run the following commands to obtain a list of all usage parameters for 2X ApplicationServer Client:

   ```
   cd /opt/2X/applicationserverclient/bin
   ./appserverclient -?
   ```

Usage Instructions

```
2X Application Server Client.
Version 4.3.2083. Copyright (C) 2005-2007 2X Software.
Usage: appserverclient options


General options:
   -m: operating mode
       2G for 2X Application Server gateway access client(default)
       2D for 2X Application Server direct access client
       AL for 2X Application Server application list
       MS for Microsoft Terminal Server client
       MF for Microsoft Terminal Server fullscreen client
   -s: server[:port] (default port is 80 for 2G and 2D modes and 3389 for MS and MF modes)
   -u: user name
   -p: password
   -d: domain
   -a: application to start
   -f: working folder
   -i: 2ax shortcut file
       2ax shortcut files available through 2X Application Server web interface, and include
published application settings. You still need to specify user login credentials with options
-u, -p, -d

RDP options:
   -w: desktop width (default: 1024)
       You can pass zero to make it equal to current workarea width
       You can pass negative value to set it as percentage of current workarea width
       (this parameter can be overwritten by server settings in 2D and 2G modes)
   -h: desktop height (default: 768)
       You can pass zero to make it equal to current workarea height
       You can pass negative value to set it as percentage of current workarea height
       (this parameter can be overwritten by server settings in 2D and 2G modes)
   -c: connection color depth in bits (default: 24 bits)
   -e: RDP experience one or more ORed value(s) from:
       0x6F to disable everything (default)
       0x01 to disable wallpapers
       0x02 to disable full window drag
       0x04 to disable menu animations
       0x08 to disable theming
       0x20 to disable cursor shadow
       0x40 to disable cursor blinking
       0x00 to disable nothing
   -t: maximum network timeout in seconds (default: 5 seconds)
   -l: locale identifier in HEX format (default: 0x0409 - English (United States))
   -C: use XCursor extension for colored pointers



Device options:
   -P: redirect printer(s) (this flag can be repited), can be
       "printcap" to use printers from '/etc/printcap'
       "printername" to use default printer driver
       "printername=drivername" to specify driver name also
   -S: redirect sound, can be
       "off" to disable sound (default)
       "local"= quality to bring it to the client with:
                "normal" for normal quality
                "good" for good quality (default)
                "verygood" for very good quality
       "remote" to leave it on the server
```

```
Other options:
   -o: output mode
       1 - print return code to stderr
       2 - print return message to stderr
       3 - print return code and message to stderr
   -v: print version info
   -?: to get help information
```

INSTALLING 2X APPLICATIONSERVER CLIENT FOR MAC OS X

System Requirements

- Mac OS X Version 10.3.9 and up

Installation Procedures

1. Download the 2XapplicationServerClient.dmg file from http://www.2x.com/applicationserver/downloadlinks.htm and store it locally.
2. Double click on 2XapplicationServerClient.dmg
3. Click 'Agree' if you agree with the terms of the license in order to access the software.
4. An installation dialog will be displayed which will help you to install the ApplicationServer client.

2XApplicationServerClient
4 items, 7.5 MB available
2X ApplicationServer Client
for Mac OS X
To Install: Drag the 2X ApplicationServer Client icon to the Applications folder. After copy is complete, Eject this disk image.
Open the Applications folder and run 2X ApplicationServer Client
2X ApplicationServer Client
Applications
To run 2X AppicationServer Client from command line copy appserverclient tool into /usr/bin folder
appserverclient
bin
© 2006 All rights reserved. 2X Software Ltd.

Figure 128 – 2XApplicationServer Client for Mac OS X installation

5. Drag the 2XApplicationServer client icon to the Application folder.

6. Open the Applications folder and run 2XApplicationServer Client

7. To run 2XApplicationServer Client from the command line, drag the appserverclient tool into /usr/bin/folder.

Please note:

The folder bin cannot be modified by default and you'll have to authenticate, and enter you credentials in order to copy the appserverclient tool in the bin folder.

Figure 129– Authentication required

8. Right click on the disk image and click Eject "2XApplicationServerClient"

Usage Instructions

Command Line

1. Open a Terminal Window
   Go > Utilities > Terminals

2. Run the following commands to obtain a list of all usage parameters for 2X ApplicationServer Client:

```
cd /usr/bin
./appserverclient -?.
```

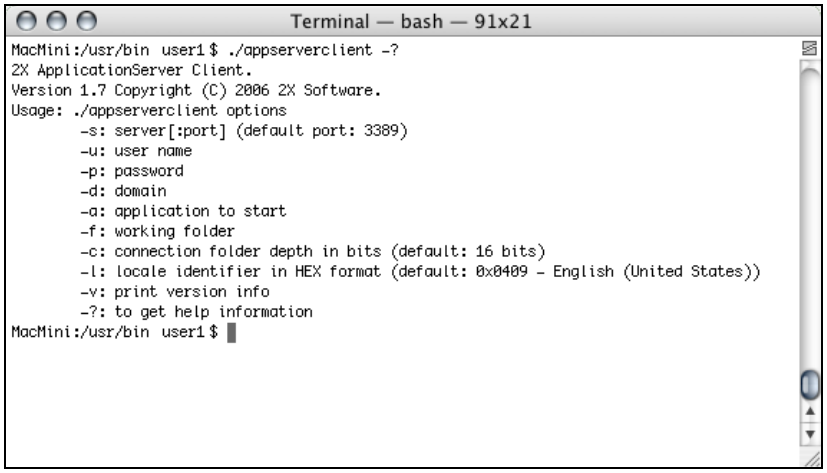
Terminal — bash — 91x21
MacMini:/usr/bin user1$ ./appserverclient -?
2X ApplicationServer Client.
Version 1.7 Copyright (C) 2006 2X Software.
Usage: ./appserverclient options
-s: server[:port] (default port: 3389)
-u: user name
-p: password
-d: domain
-a: application to start
-f: working folder
-c: connection folder depth in bits (default: 16 bits)
-l: locale identifier in HEX format (default: 0x0409 - English (United States))
-v: print version info
-?: to get help information
MacMini:/usr/bin user1$

Figure 130 – Usage Instructions

Graphical User Interface

To launch published applications using Graphical user Interface, follow these steps.

1. Go > Applications > Terminals > 2XApplicationServer Client
2. Click 2X from the Apple Menu and choose Connect…
3. Fill in the required fields and press 'Connect' button

Figure 131 – Mac 2X Application Server client - Connector

Figure 132 - Mac 2X Application Server client - Options

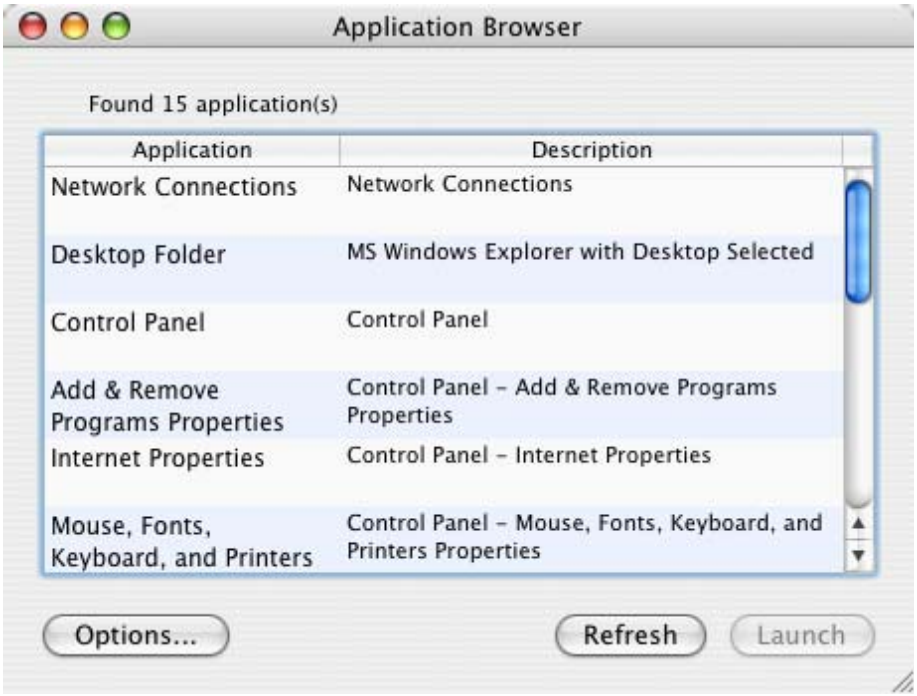

Figure 133 - Mac 2X Application Server client – Application Browser

4. When you click the connect button you should get the Application Browser window where the published application are listed.
5. Select the required application and click the '**Launch**' button.
6. Execution of the published application as displayed in the figure below.

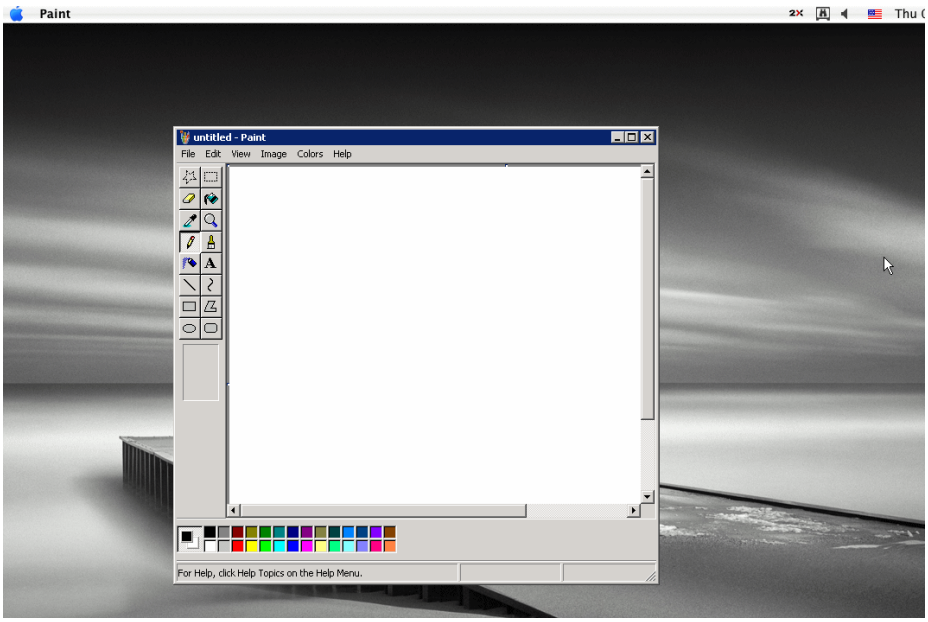

Figure 134 - MS Windows application running over RDP on a Mac platform

APPENDIX

Examples how to use command line parameters

The following examples illustrate the use of this client:

```
appserverclient -s<Server IP> -a<"Application Name"> -
u<User Name>

appserverclient -s192.168.0.1 -a"Internet Explorer" -
uAdministrator
```

In this case you are requested to logon before the application is loaded.

2) appserverclient -s<Server IP> -a<"Application Name"> -u<User Name> -p<Password>
appserverclient -s192.168.0.1 -a"Media Player" -uAdministrator -ppassword
In this case the logon screen is bypassed if the password is correct.

Please note:

The application name is case sensitive and must be surrounded by quotes. Examples are "Notepad", "Internet Explorer", and "Media Player".

Table of available locale identifiers

Identifier	Name
0x0401	Arabic (Saudi Arabia)
0x0403	Catalan (Spain)
0x0404	Chinese (Taiwan)
0x0804	Chinese (People's Republic of China)
0x0405	Czech (Czech Republic)
0x0406	Danish (Denmark)
0x0407	German (Germany)
0x0807	German (Swiss)
0x0408	Greek (Greece)
0x0409	English (United States)
0x0809	English (Great Britain)
0x0C0A	Spanish - Modern Sort (Spain)

0x0425	Estonian (Estonia)
0x040B	Finnish (Finland)
0x040C	French (France)
0x080C	French (Belgium)
0x0C0C	French (Canada)
0x100C	French (Swiss)
0x040D	Hebrew (Israel)
0x040E	Hungarian (Hungary)
0x0410	Italian (Italy)
0x0411	Japanese (Japan)
0x0412	Korean (Korea)
0x0427	Lithuanian (Latvia)
0x0426	Latvian (Latvia)
0x0413	Dutch (Netherlands)
0x0813	Dutch (Belgium)
0x0414	Norwegian (Norway)
0x0415	Polish (Poland)
0x0416	Portuguese (Brazil)
0x0816	Portuguese (Portugal)
0x0418	Romanian (Romania)
0x0419	Russian (Russia)
0x041A	Croatian (Croatia)
0x041B	Slovak (Slovakia)
0x041D	Swedish (Sweden)
0x041E	Thai (Thailand)
0x041F	Turkish (Turkey)
0x0424	Slovenian (Slovenia)
0x042A	Vietnamese (Vietnam)
0x042D	Basque (Spain)
0x040F	Icelandic (Iceland)

TROUBLESHOOTING

Introduction

The troubleshooting chapter explains how you should go about resolving issues you have. The main sources of information available to users are:

- The manual – most issues can be solved by reading the manual.
- The 2X support site – accessible from the 2X website. It includes a knowledge base with the most frequently asked questions.
- Contacting the 2X support department by email at support@2x.com
- Contacting our support department by telephone.

Knowledgebase

2X maintains a knowledgebase, which includes answers to most common problems. If you have a problem, please consult the knowledgebase first. The knowledgebase always has the most up-to-date listing of support questions and patches.

The knowledgebase can be found on http://support.2x.com

Request support via e-mail

If, after using the knowledgebase and this manual, you have any problems that you cannot solve, you can contact the 2X support department. The best way to do this is via e-mail, since you can include vital information as an attachment that will enable us to solve the issues you have more quickly.

You may be asked to collect some information and you may be asked a number of questions. Please take your time to answer these questions accurately. Without the proper information it will not be possible to diagnose your problem.

We will answer your inquiry within 24 hours or less, depending on your time zone.

Request support via phone

You can also contact 2X by phone for technical support. Please check our support website for the correct numbers to call, depending on where you are located, and for our opening times.

Support website:

http://support.2x.com